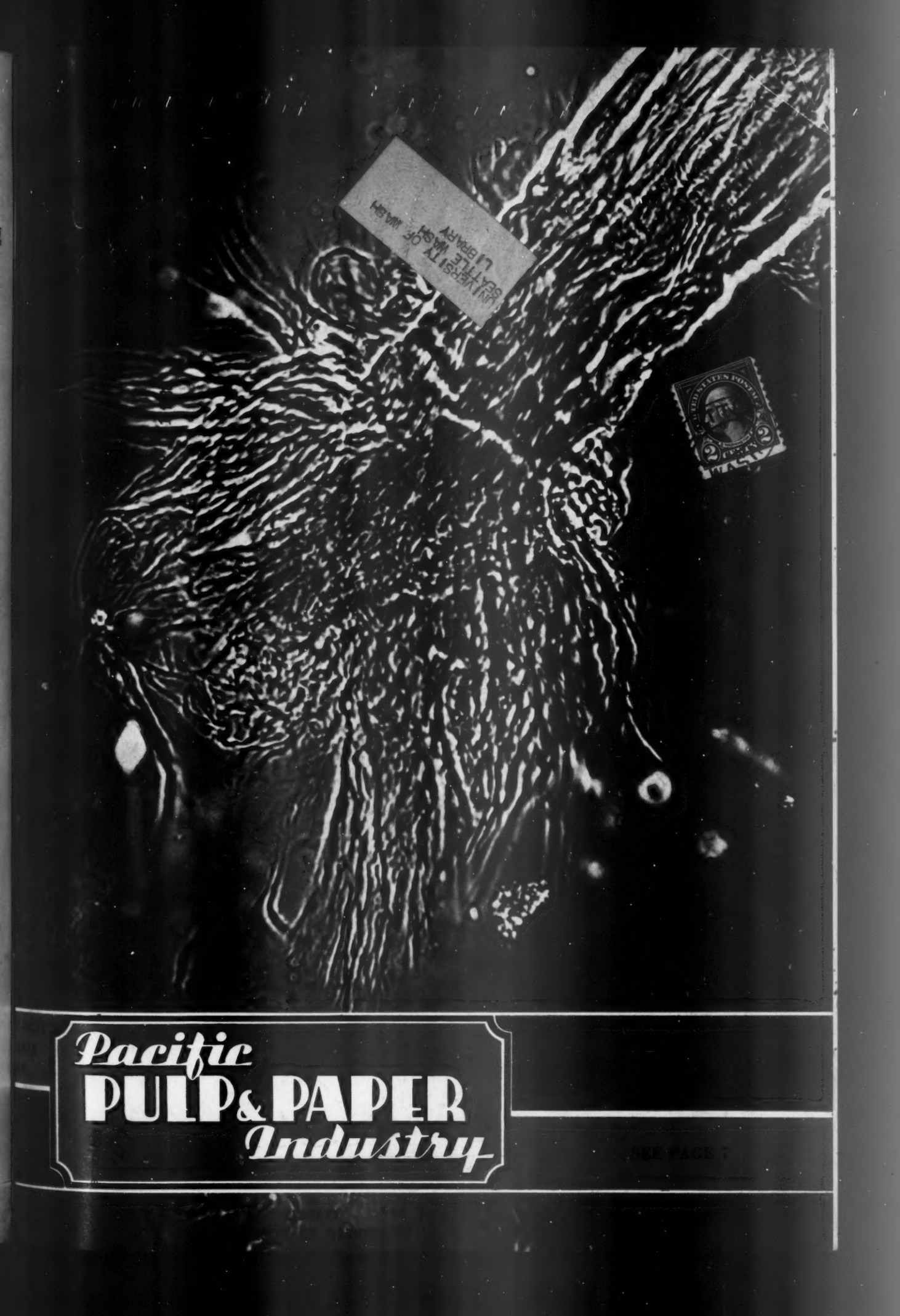
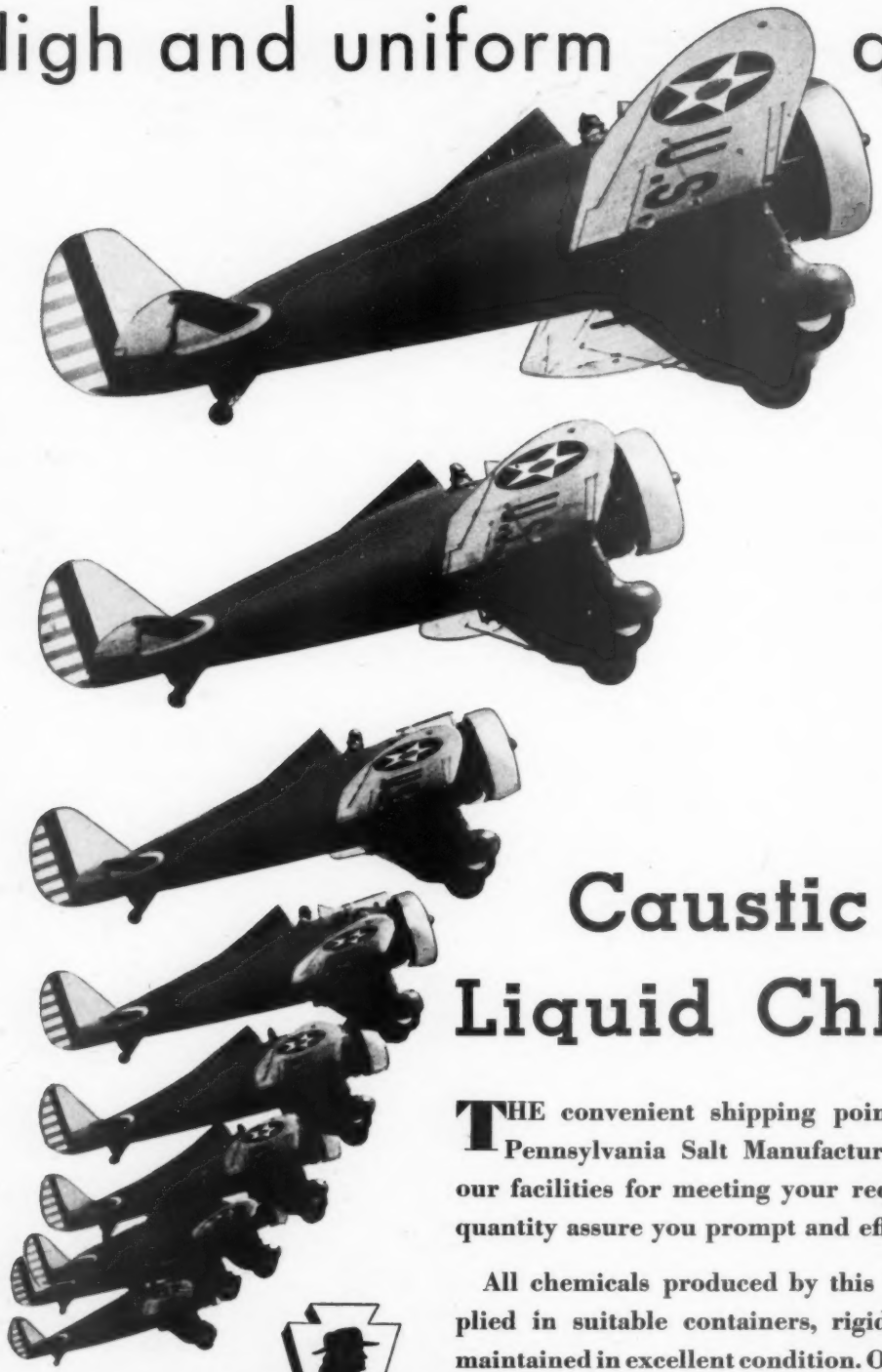


Pacific PULP & PAPER Industry

SEE PAGE 7

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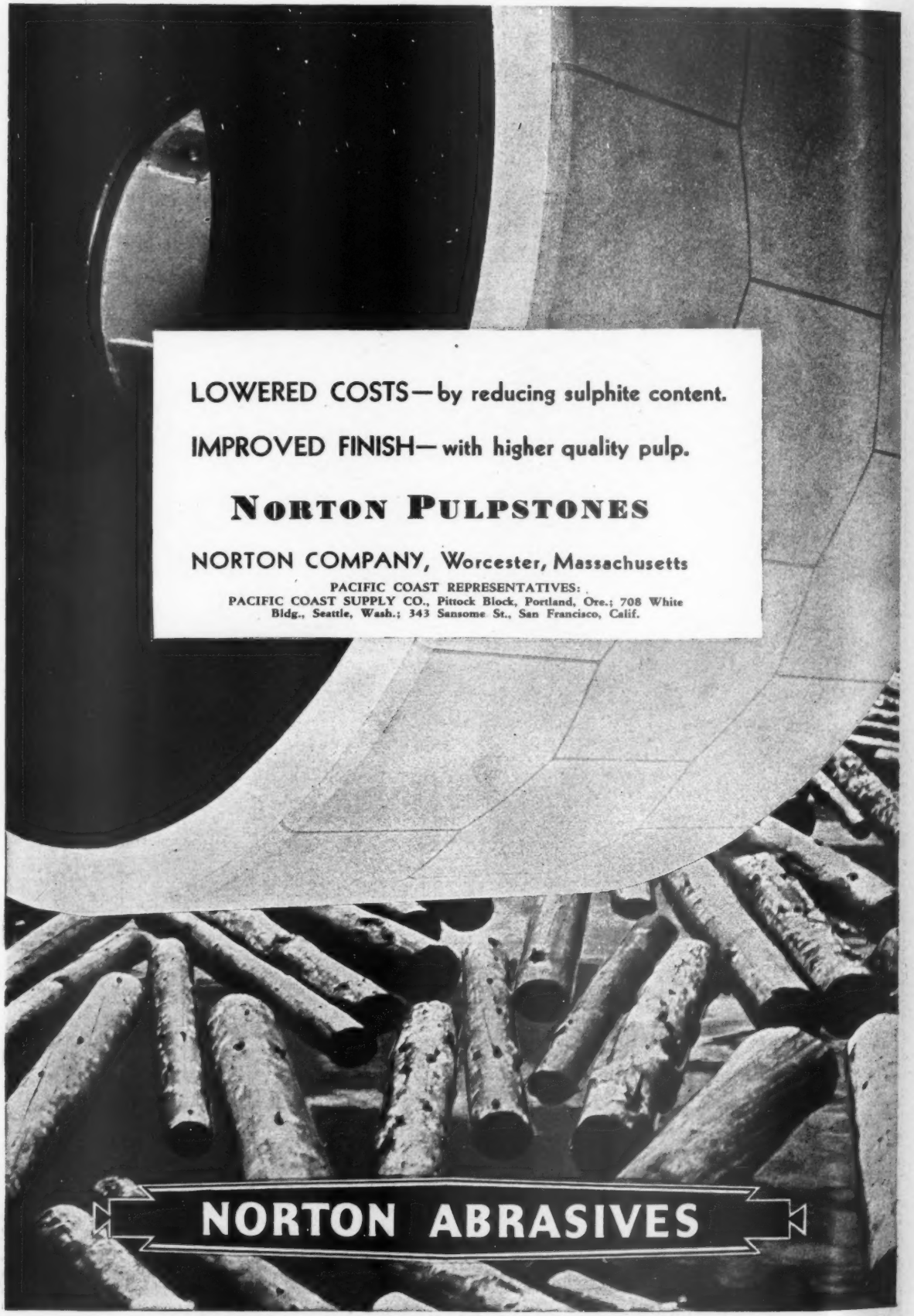
PENNSYLVANIA SALT *Chemicals*

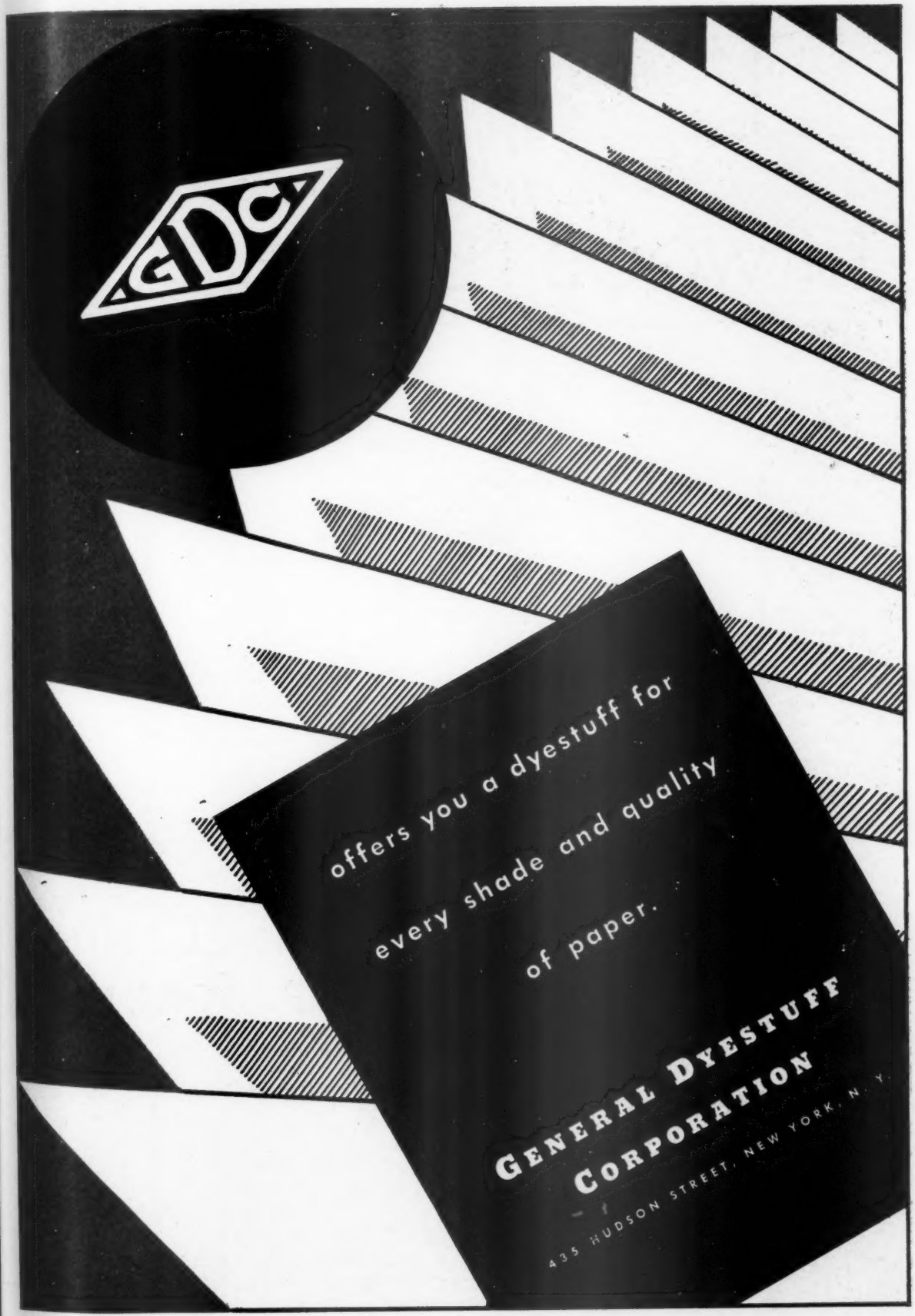
Other products of Pennsylvania Salt Manufacturing Company

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Ammonia
Calcium Hypochlorite
Penchlor Acid-Proof Cement
Penchlor Asplit Cement

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Program Announced for Superintendents' Meeting

A full round of meaty business discussion, technical papers and entertainment will be offered pulp and paper men when they gather at the Washington Hotel in Seattle, December 2 and 3, for the winter meeting of the Pacific Coast Division of the American Pulp & Paper Mill Superintendents Association.

Registration will start in the lobby of the hotel at four p. m. on Friday. At the registration table will be a Question Box, and everyone is invited to write out questions on which discussion is desired, and leave them here. The questions should not be signed.

The golf tournament previously arranged will not be held, but all those who want to play Friday afternoon may get in touch with Earl Thompson, 1201 Textile Tower, Seattle, who will arrange for it.

At 8:15 Friday night a "hard times" costume ball will be held in the Holland Tavern at the hotel. Prizes will be awarded for the Best Lady, Best Man, Best Couple and the Most Comical Couple. There will also be a surprise lottery prize, to be announced on the floor. Buffet supper will be served.

At eight o'clock Saturday morning there will be a breakfast for the men, at which entertainment will be provided. Z. A. "Zinc" Wise is coming up from Portland to stage the show. The breakfast will adjourn for the business session in the mezzanine ball room at 9:30.

Four papers will be presented during the business sessions. E. W. G. Cooper, assistant paper mill superintendent of the Crown Willamette Paper Co. mill at Camas will present the subject "Comparison of Kraft and Sulphite on the Paper Machine."

The second subject will be "Developments and Improvements on Board and Paper Machines," prepared by Anton Siebers, superintendent of paper machines for the Longview Fibre Co.

"Compositions of Sulphate Cooking Liquor" will be the title of the paper by Niles Anderson, assistant superintendent of the St. Regis Kraft Co.

Norman A. Lewthwaite, pulp mill superintendent for the National Paper Products Co. at Port Townsend, will give "An Outline of Sulphate Pulp."

The meeting will adjourn at 11 a. m. for the election of officers, followed at noon by a luncheon for both ladies and men in the Windsor Room.

At 1:30 the conference again convenes for the rest of the afternoon, and the popular Superintendents' Round Table discussions will be held.

While the business session is on, the ladies will spend Saturday afternoon at bridge in the Mirror Room, starting at 1:30, with prizes awarded for top score. Tea will be served at 4 p. m. Mrs. Harold Cavin is chairman of the ladies' committee, with Mrs. Earl Thompson as vice chairman. Assisting them on the committee will be Mesdames K. O. Foss, Andreas Christensen, W. N. Kelly, Robert Bundy, C. J. Armbruster, J. H. McCarthy and Fred Shaneman.

All those attending are urged to bring their wives, and to be present at the dinner dance Saturday evening at 7:30. The dinner dance will be informal for the men, but the ladies may dress. Prior to the dinner there will be a reception in the Jade Room, at 6:30, to honor the outgoing officers, L. S. McCurdy, chairman, E. W. G. Cooper, first vice chairman, Anton Siebers, second vice chairman, and A. S. Quinn, secretary-treasurer.

General chairman for the event is James Brinkley, assisted by A. S. Quinn on the entertainment, and B. A. "Brick" Bannon, handling the prizes, and Earl Thompson on golf.

Chairman Brinkley urges that everyone interested in the industry attend, as all will be welcome, whether members of the association or not. Cards are being sent out inquiring whether or not the recipient intends to attend, and these should be returned promptly. Those not receiving cards should write James Brinkley, 417 Ninth Ave. South, Seattle, who will arrange hotel accommodations if desired.

New Westminster Mill Builds Converting Plant

$100,000 Construction Program Made Possible by Expanding Canadian Market for Specialties

● Construction of a new conversion plant, which will represent an important addition to the present mill, is now well under way for the Westminster Paper Company, Ltd.

President J. J. Herb told Pacific Pulp & Paper Industry that the total cost of the building will be about $100,000, and that it is planned to have the new plant in operation by the first of 1939.

The first floor of the building has already been pretty well completed, Dominion Construction Company being the contractors, with F. A. Lake the engineer in direct charge of construction. When completed, the company will have in operation a mill representing an outlay of $1,250,000.

In at least one particular the new building at New Westminster will give the company an opportunity to extend production into a different line. Machinery is to be installed for the manufacture of a new type of paper napkins at the rate of 9,600 an hour. The product is described as a personal napkin fillled with rayon silk cotton batten. Similar machinery with the same capacity is now being installed at the Bellingham plant, the necessary additional housing accommodation having been leased from the Puget Sound Pulp & Timber Company.

Company officials say that this move may represent an important departure in manufacturing policy, as the manufacture of personal napkins may be followed by production of paper handkerchiefs, facial and cleansing tissues and similar goods.

The machinery has been patented by Curt G. Joa, Inc., of Sheboygan Falls, Wis., where the Herb brothers recently visited with a view to studying production technique.

● Mr. Herb says that the Westminster Paper Company is now concentrating on the Canadian market. While a few years ago the company had a large export sale, particularly in Australia, tariffs and turns in the business trend from year to year have resulted in the direction of the company's selling effort to the domestic field. Waxed paper, toilet tissue, wrapping paper and other specialties manufactured at the New Westminster plant are now selling throughout Western Canada.

Export business now represents only about ten per cent of the company's sales; a few years ago it was 40 per cent. In September the New Westminster mill and Pacific Coast Paper Mills at Bellingham, another Herb enterprise, sold $200,000 worth of goods.

The New Westminster mill now employs 150 men and the Bellingham mill 135. The combined payroll is $300,000 a year.

During the past six years Westminster Paper Company, Ltd., has spent more than $160,000 on additions and improvements, including the addition now under way. For the like period dividends were maintained at 40 cents a share on common stock with an increase to fifty cents per annum with the semi-annual payment of 25 cents a share made May 1 last. The second 25 cents a share payment was made November 1.

The company reported a net profit for the half year of the current fiscal year ended January 31 of $23,130 after bond interest, depreciation and taxes. This compares with $29,685 in the full year ended July 31, 1937. The company has been able to reduce its funded debt to $204,500. Of the latter amount, $74,500 was held as sinking fund at January 31, 1938, plus $5,472 in cash, reducing net debenture debt to $124,500.

Oberdorfer, Jr., Fills in When Bad Luck Hits Lab

Max Oberdorfer, Jr., who has been working at the Southern Kraft Corporation mill at Springhill, La., is now in the laboratory of the St. Helens Pulp & Paper Co. while some of the crew is off duty.

The men in the laboratory had a streak of bad luck recently which left the staff short handed. Ralph Drane, chief chemist, has been ill with pneumonia for some time following the death of his wife.

His assistant, L. M. Radtke, fell from a roof a short time ago and badly broke both heels, which has prevented him from carrying on his duties in the lab.

Deep River Development Company Plans Progress

Plans for establishment of a pulp mill somewhere on the northeast coast of Vancouver Island by Deep River Development Company are proceeding, according to William Meehan, of J. P. Meehan & Company, one of the sponsors of the project, but negotiations have not yet reached finality.

It is understood that the interests behind the Deep River enterprise are seeking concessions from the provincial government. Financing details are said to have been already completed.

The proposal embraces utilization of waterpower near Elk Falls on the Campbell River, but there may be some difficulty in establishing rights to this power as the B. C. Power Corporation, British Columbia's major light, heat and traction company, is retaining its reserve on the site on the assumption that it may wish to develop electrical energy on its own account to supply Vancouver Island industries.

Valentine Quinn, one of the principals of Deep River Development, is now in the east and is not expected to return until some time in December.

Crown Technical Men Meet

The Crown Zellerbach technical association, composed of technical men and superintendents, held its annual meeting October 28 and 29 at the Heathman hotel, Portland.

Fred Olmsted, technical supervisor of the Camas mill, presided as chairman of the group.

Pulp and Paper School Started in Longview

The vocational department of the Longview public schools is sponsoring a general survey course in pulp and paper manufacture, under the direction of George McGregor of the Pulp Division, Weyerhaeuser Timber Co., and Carl Fahlstrom of the Longview Fibre Co.

The first class was held October 18, being followed by classes on Tuesday evening of each week. It will continue into the first part of next April. The course covers all types of pulp, paper machines, steam, hydraulics, piping, pumps, paper making, dyeing, bleaching, etc. From 60 to 75 men, representing all three of the Longview mills, are attending the classes, to hear the speakers present information about the various phases of the industry.

Others of the industry who are assisting in the work include Carl Flanders of the Longview Fibre Co., A. C. Zimmerman and Arnold Maahs of Pacific Straw Paper & Board Co., Ed Wood and J. H. Handley of the Pulp Division, Weyerhaeuser Timber Co.

Charles Belvin of Chromium Corp. Returns to Coast

Charles H. Belvin, Jr., Pacific Coast representative of the Chromium Corporation of America, is back in the West after an extended trip to the Atlantic Coast. His friends will be glad to know that he will remain here instead of transferring to the East as was thought likely.

Mr. Belvin will continue to make his residence in Portland, at 4651 N. E. 36th Ave. He left for Southern California on Nov. 7, but is expected back in the Northwest before Christmas.

Weyerhaeuser Makes Improvements at Everett

● During the past year the Everett mill of the Pulp Division Weyerhaeuser Timber Company has carried out an important improvement program under manager G. S. Brazeau and plant engineer L. E. Hill.

This work included the installation of circulating systems on all six digesters. These were supplied by the Electric Steel Foundry Company of Portland. The steam plant was enlarged with the addition of another Babcock and Wilcox boiler together with auxiliary equipment. This was supplied by the C. C. Moore & Company, Engineers, of Seattle.

The boiler installed was included in the original plans for the mill which were prepared by O. C. Schoenwerk, but the installation was not made at the time the mill was built in 1935-1936.

Another important improvement was the installation of Cottrell electrical precipitator for the elimination of waste gases from the Jenssen acid towers and to reduce sulphates in the cooking liquor.

Besides these major improvements the Weyerhaeuser organization at Everett has instituted a number of minor changes and refinements to improve quality and reduce costs.

Digester Being Transferred To Mill at Lebanon

A 15 by 40-foot digester is being transferred from the idle Floriston, California mill of the Crown Zellerbach Corporation, to Lebanon, Oregon, where it will replace one of the smaller units now in use there. Production will be increased slightly by its use.

Its installation will require the rebuilding of the present digester building. The changes are being carried out under the direction of the central engineering office of Crown Zellerbach at Port Angeles.

Construction of Chase Bag Plant Starts in Portland

The new factory of the Chase Bag Company has been authorized and constructed started recently on the 200 by 300-foot property at N. W. 26th Ave. and Nicolai St. in Portland, Ore.

Covering an entire block, the building will be of concrete construction with a wood roof, and of one story height, except for the office portion, which will be two stories. Cost of the structure will be in excess of $100,000.

The firm will make open mesh paper twine bags in the plant, in addition to burlap bags, flour sacks, etc.

●

Portrait of a Fiber

The cover photograph shows one end of a well beaten summer-wood fiber of Western hemlock, 4,000 times larger than actual size. The broomed end is the result of beating in a ball mill.

This illustration explains, in part, why Western hemlock is so desirable for paper manufacture, for even summer-wood fibers "fibrillate" readily enough so that extreme over-beating of the spring-wood fibers can be avoided.

The fine strands in the broomed end of the fiber (tracheid) are fibrils which together build up the cell wall, as will be noted in the upper right hand corner of the illustration. In brooming out these fibrils do not seem to break up into fragments readily, even with quite prolonged beating.

The cover illustration was enlarged from a photomicrograph made with ultra-violet light at an initial magnification of 2,100 diameters by Professor BROR L. GRONDAL at the COLLEGE OF FORESTRY of the UNIVERSITY OF WASHINGTON.

The beaten fiber was briefly treated with 25 per cent phosphoric acid, washed with water, soaked in quinine hydrochloride, washed with water, and mounted on a corex slide under a glass cover glass. A tungsten mercury arc was used as a light source with a quartz condensing system, and the photograph was made with objectives especially designed for use with ultra-violet light.

James Duvall Passes

James Wilson Duvall, prominent Camas, Washington, resident and well known figure in the paper industry, died Nov. 1 of bronchial pneumonia. He was 58 years old.

Mr. Duvall came to Camas in 1909, where he was superintendent of the Crown Willamette bag factory until 1927. At that time he resigned to found the Perfection Twine Co., manufacturing paper twine with machines of his design. He sold this business only last year.

He was an active civic worker, being mayor of Camas from 1911 to 1915, a member of the water commission, etc. He is survived by his widow, a son, Herbert of Camas; a stepson, Walter C. Mueller of South Gate, Calif.; and two brothers, Albert of Middletown and Christofer of Lynchberg, Ohio.

West Linn Plant Increases Operating Schedule

The West Linn, Oregon, plant of the Crown Willamette Paper Co., division of Crown Zellerbach Corporation, started operating six days a week on October 22. This is the first time in about two years that the company has operated at this level, having previously been on a five-day basis.

The Willamette River is coming up slowly at this time of year, and both Crown Willamette and the Hawley Pulp & Paper Company across the river at Oregon City, are preparing to start their water-powered grinders the latter part of the month. Crown has 24 water wheels, most of which run from two to four stones. Hawley has about 20 water wheels driving grinders, beaters, etc.

Large Timber Transfer

Deeds were filed November 3 with the county auditor at South Bend, Washington, transferring approximately $500,000 worth of pulp timber land in Pacific County to the Crown Zellerbach Corporation and Rayonier Incorporated.

Camas Paper School Starts

The sixth year of school activities started at Camas, Washington, the last week in October, when the Crown Willamette paper school held its opening sessions of the season.

A. G. Natwick, dean of the school, has announced an enlarged faculty, to include C. A. Enghouse of West Linn. E. W. G. Cooper, O. T. Defieux, F. R. Sievers, H. H. Junge, R. G. Mispley, J. H. Hull and O. H. Gallaway.

Oregon Passes Anti-Pollution Bill

Voters of the state of Oregon on November 8 passed by a wide margin the so-called "anti-pollution" bill. This bill, summarized in past issues of this journal, provides for a Sanitary Authority of six members, with a state sanitary engineer to act as advisor, in an effort to solve the stream pollution problem.

While the exact effect of this new measure on the pulp and paper industry is not yet definitely known, it is believed that most of the plants will be able to comply with requirements without hardship. Leaders within the industry were among the supporters of the bill, judging it a constructive measure fair to all concerned.



R. LYLE SIMPSON
Named Printing Paper Sales Manager

St. Helens at Capacity

The St. Helens Pulp & Paper Co. mill is operating at peak capacity, with a full order file, and expects to continue to run full for the rest of the year.

Service Pins Awarded

Seventy employees of the Crown Willamette mill at Camas, Washington, received five, 10 and 15 year pins last month.

Five year pins were awarded to the following: John Roland Asher, Vincent John Ross, Clarence Pepper, William E. Carter, Alvin Doyle, Henry Ullrich, Wallace Vern Kane, Eugene Finley, Florence Estella Clark, Cecil Bryan Templer, Edward Raymond Triplett, James Brown, Harry Ray Mitchell, Jessie McGrath Kersey, Selby Thomas DeWeese, Donald Edward Fifield, Harold Mitchell, John A. Birkemo, Steward Henry Lawrie, Victor Paul Nagel, Charles Delmar Barchus, Ray Ready, Earl Donald Lucas, Geneva Lucille Persons, Lawrence Everett Ogle, LeRoy McClain, Marvin George Parker, Beryl Lyle McBroom, Russell Kenneth Blair, Evelyn Lucille Wasser, Ruby Aslin, Alfred Kenneth Jones.

Clifford Raymond Dickinson, Sam R. Runyan, Carmi Goodrich Evans, Clifford James Odoms, John Glen Taylor, Jacob Jack Fix, John Frank Grace, Ray Myers, Henry Bafus, Alfred Josephus Tate, Alvin Eugene Cadd, Donald Edward Person, Donald Ralph Buhman, Joseph Michael Curran, John Joseph McDougall and Emmett Arthur Scott.

Ten year pins: Thomas Raymon Martin, Charles Elmer Newquist, Robert Dee O'Hara, Florence Ethna Sadawasser, Lincoln Ezekiel Guyll, Jessie Burns, Carl A. Herman, Vivian Rogers, Mary McLean, Elbert Lyle Newkirk and Thelma May Winters.

Fifteen year pins: Nicolaos Skamnias, Arthur Wallace Warren, Joseph Alphonse Lambert, Sam Drichas, Walter Scott Hansen, Daniel Tilton Grover, Raymond Fred Miller, Clarence L. Esser, Joseph William Ulowetz and Nis Nissen Hagensen.

Simpson Assumes New Post for Blake, Moffitt & Towne in Los Angeles

● The promotion of R. Lyle Simpson to the position of sales manager of the printing paper department of the Los Angeles division of Blake, Moffitt & Towne was recently announced by Walter W. Huelat, manager of the large pioneer paper company's Los Angeles house. In assuming his new position, Mr. Simpson takes over the duties formerly in charge of T. M. Denison, who died suddenly on September 20th.

Mr. Simpson has just completed his 14th year with Blake, Moffitt & Towne and prior to his new appointment was for a number of years assistant sales manager. His career in the paper business started in 1911 with the Louisville Paper Company, Louisville, Kentucky. At the outbreak of the war he left his position as manager of the Knoxville branch to go overseas as an officer with the 7th Division, 56th Infantry. He was wounded in France and in recognition of extraordinary bravery under fire was decorated by the French government with the Croix du Guerre with Palm and the French Legion of Honor, while the United States government awarded him the Distinguished Service Cross and the Order of the Purple Heart. Upon his return from the war he rejoined the Louisville Paper Company and was placed in charge of the company's sales and purchasing activities.

Coming to California in 1924 to marry, Simpson decided to enter the paper business in Los Angeles and made application to Blake, Moffitt & Towne. Since then, as salesman and later assistant sales manager, he has made many friends in the printing and allied trades in southern California and the announcement of his promotion to what is considered one of the most important sales executive desks on the West Coast has prompted many passages of congratulations and good wishes.

Coupled with the announcement of Simpson's appointment is that of Don E. Edmond as assistant sales manager. He was formerly connected with the Graham Paper Company of El Paso and has just completed eleven years with Blake, Moffitt & Towne. He has represented the company in San Francisco, Long Beach, San Luis Obispo, Santa Barbara, and for the last two years has been handling many of the larger printing and industrial accounts in Los Angeles.

Spaulding Mill Resumes

The Newberg, Oregon, mill of the Spaulding Pulp & Paper Co., resumed operations October 31, to run through the month of November. The company is at present on a schedule of about 45 to 50 per cent capacity, all production going to domestic buyers.

Financial . . .

● **Paraffine Companies, Inc.** . . . Profits for the quarter ended September 30 totaled $336,403 or 66 cents a share on common stock, the highest since the like quarter last year, when profits were $1.30 a share. The June quarter net was $238,811 or 45 cents a share on common. Regular four per cent dividends on preferred stock have been paid.

● **Johns-Manville Corporation** . . . Net profit for the September quarter rose to $882,366 or 89 cents a share on common, from $214,578 in the preceding three months. The showing was well below the net for the September, 1937, quarter, which was $1,780,857.

● **St. Helens Pulp & Paper Co.** . . . Directors on October 18 declared a dividend of 20 cents per share, payable November 1 to stockholders of record October 25.

● **Crown Zellerbach Corporation** announced that it had entered into an agreement for a long term bank loan in the amount of $10,000,000.00.

Interest on the $10,000,000.00 bank loan will be paid at the rate of 3½ per cent per annum. The first of the notes evidencing the loan will not mature until March 1, 1943, which is subsequent to the final maturity of the other long term bank loans of Crown Zellerbach Corporation, and will continue to mature thereafter on September 1 and March 1 of each year to and including March 1, 1948. The final serial notes of the loan will mature on December 31, 1948.

The proceeds of the loan, together with the necessary additional funds to be provided out of the company's treasury, will be devoted to the redemption on January 1, 1939, of the remaining $9,927,500.00 principal amount of the Crown Willamette Paper Company Mortgage Sinking Fund 6 Per Cent Gold Bonds, due January 1, 1951, which are now outstanding. At the time Crown Willamette Paper Company was merged into Crown Zellerbach Corporation in March, 1937, these bonds were assumed by Crown Zellerbach Corporation.

● **Soundview Pulp Company** . . . Declared the regular $1.50 quarterly dividend on preferred stock, payable November 25 to stockholders of record November 15, but passed the dividend on common. The common stock was on a $1 annual basis up to June this year, when quarterly payment was omitted. In 1937, an additional $2 par value was paid in preferred stock.

● **Certain-teed Products Corporation** . . . Net earnings for third quarter of $195,729, equal after preferred dividend requirements to 14 cents a share on common. In the same 1937 quarter, net was $133,525, or four cents per share. C. L. Von Egloffstein has been elected president, succeeding W. G. Baumhogger.

● **United Paper Board Co.** . . . For the quarter ended August 27, net income was $13,051.

● **Crown Zellerbach Corporation** . . . Has declared regular quarterly dividend of $1.25 per share on the $5 cumulative preferred stock, payable December 1 to stock of record November 15.

● **Soundview Pulp Company** . . . Reported net profit of $374,351 for first nine months of 1938, equal after preferred dividends to 57 cents a share on common stock. For the like period of 1937, net profit was $1,459,833 or $2.92 per share.

Bonestell Established In New Location

● Bonestell & Company, paper merchants, of San Francisco, have moved to a new location in a recently remodelled building at 540 Howard street. The change was necessary because of the fact that their former building at 118 First street is immediately adjacent to the terminal of the San Francisco-Oakland Bay Bridge Transportation System.

The company used the opportunity to provide more room and better and more modern facilities. The new building is situated at 540 Howard street, in the heart of an important printing supply center of San Francisco. It is a block distant from the terminal and convenient to rail and water transportation.

The space provided totals to 50,000 square feet — an increase of fifty per cent over the old building; there are four floors and basement, 100x125. The building has been completely rebuilt and is of a most substantial type of construction, with heavily timbered floors and brick and concrete walls. It has been remodelled to meet the special needs of a large and varied stock of printing papers.

A handsome suite of offices at the front on the ground floor include four offices for department heads and a large general office. The offices are finished in yellow plaster, with wood trim done in brown—an harmonious and attractive color scheme.

The ample space for paper storage permits the carrying of all stocks on skids. All open stock is carried in bins with compartments, laid out in aisles, each aisle and each compartment being numbered and lettered to coincide with a type-written index giving location and quantity of each item, any one of which can be found instantly.

● The building has a number of special features of more than ordinary interest. One of the most important of these is the ample paved parking space at the back of the building where there is room for parking of thirty or more cars. There is also a meeting room for the staff, a sample room with a system that makes a multitude of samples instantly available; a huge built-in vault; separate entries for incoming and outgoing trucks; a five ton elevator; thermostatic heating system; modern restroom for women employees. The building is of more than ordinary architectural excellence in its exterior aspects and is thoroughly modern in appointments and finish within.

Bonestell & Company is a long established firm, having been in the paper business in San Francisco since 1852. Retaining always its traditions of merchandise of merit and cooperation with customers, the house has fully kept pace with modern developments by the constant addition of the newest and best in printing papers and in the quality of service provided for buyers of paper.

H. S. Bonestell is president of the company and Charles Pritchard is sales manager.



New Home of Bonestell & Company, Pioneer Paper Merchants of San Francisco

Dave Goldsmith Receives 30 Year Pin

● At a meeting of the board of directors of the Crown Zellerbach Corporation on October 24, David J. Goldsmith, secretary of the company, was presented with a 30 year service pin by Louis Bloch, chairman of the board.

Later in the day Mr. Goldsmith was the guest of honor at a surprise party in the company's lunch room in the Crown Zellerbach Building in San Francisco. The party was given by department heads and executive secretaries. Ice cream and cake were served to the approximately sixty guests who gathered to honor Mr. Goldsmith upon the occasion of his having completed 30 years of service with the Crown Zellerbach Corporation and its predecessor companies.

Mr. Goldsmith has played an active and important part in the development of the Crown Zellerbach Corporation. He was born in Portland, Oregon, and when seventeen entered the employ of the Crown Columbia Pulp and Paper Company and later worked for the Floriston Pulp and Paper Company, both predecessors of the Crown Zellerbach Corporation. From 1910 to 1912 he was office assistant at the mill office at Camas, Washington, and later held the same position at Floriston, California. In 1912 Mr. Goldsmith was appointed confidential secretary to Louis Bloch who was then vice-president and general manager of the Crown Columbia Pulp & Paper Company and the Floriston Pulp & Paper Company. Two years later his duties were increased and he became confidential secretary to William Pierce Johnson, president of the companies, as well as to Mr. Bloch.

● In 1916 he established the general statistical department and the following year he became general purchasing agent. He assumed the duties of assistant secretary and assistant treasurer in 1922 and moved to Portland, Oregon. From there he was transferred in 1925 to the executive offices in San Francisco as assistant secretary and assistant treasurer. The next year Mr. Goldsmith was appointed secretary of the Crown Willamette Paper Company and handled details of the company's refinancing.

In 1928 he was elected secretary of the Crown Zellerbach Corporation and handled details of the merger proceedings with the Zellerbach Paper Company, the issuance and listing of securities, etc.

Besides his duties with Crown Zellerbach Mr. Goldsmith also serves as secretary of the corporation's subsidiaries.

European Progress Discussed At Everett TAPPI Meeting

Dr. Benson Describes Research Laboratories; European Visitors Discuss Recent Developments

● Everett, Washington, was the scene of the second fall TAPPI dinner meeting November 10, when members of the Pacific Coast section gathered at the Monte Cristo hotel. They were about 100 strong, representing mills in British Columbia, Everett, Tacoma, Shelton, Port Townsend, Port Angeles, Bellingham, Longview, etc.

In the absence of Chairman N. W. Coster, who was in the East on business, Wm. T. Webster presided over the meeting. As first speaker he introduced Curt Rosenblad of Aktiebolaget Rosenblads Patenter, a visitor from Stockholm, Sweden. Mr. Rosenblad discussed heat and SO_2 recovery systems.

He pointed out that in Sweden the average cost of steam is $0.70 per ton, while on the West Coast the cost is from $0.30 to $0.40 per ton of steam. Even at this lower cost, a heat recovery system will pay for itself in one to two years, he said. He described the Spiral Heat Exchanger made by his firm, which has been installed in some 30 mills including five in the United States, in both sulphite and sulphate mills.

The steam recovered in American mills by the system will approximate 800 to 1200 pounds per ton of pulp, he said, and the recovery of sulphur should be from 50 to 100 pounds per ton. At the conclusion of his talk, he and his New York associate, Emil Creutz, answered questions from the audience on the subject.

European Research Described

● The featured speaker of the evening was Dr. H. K. Benson, head of the chemistry department at the University of Washington, who showed some 35 slides illustrating his talk concerning his recent European trip.

During the past summer Dr. Benson traveled to Europe as a delegate from the United States to the International Union of Chemistry which met at Rome, Italy, May 14-21. He spent a month each in Italy, Germany and Scandinavia and had excellent opportunities to observe the various centers of research in cellulose chemistry and to converse with the technical men of the pulp and paper industry.

In France he visited the French School of Paper Making which is an annex of the Polytechnic Institute of the University of Grenoble. A very fine four-story concrete building of modernistic design is under construction to house the Paper Making School. In France the manufacture of special papers such as cigarette paper, electrical insulating papers and the like is of special importance, utilizing rags, flax, hemp, sisal and other materials. Recently a pulping study was completed on Douglas fir, white fir and Sitka spruce planted in the Amance forest in northeastern France 35 years ago. These studies indicated that these species grown in France had favorable paper making qualities.

"The Royal Experimental Station of the Industry of Pulp and Vegetable Fibres is located at Milan, Italy," Dr. Benson said. "It is housed in recently constructed buildings very fully and completely equipped. On the day I visited the station, the staff was engaged in making textiles from 60 per cent wood fibres from mulberry bark and 40 per cent cotton. In Italy also the extensive work on artificial wool from casein is being undertaken as well as the production of fine writings and printings from wheat straw, salt and electrical power. The experimental cellulose factory at Milan is a separate building for small scale manufacture of pulp, paper and rayon.

● "In Germany I visited the University of Heidleberg where Dr. Freudenberg is carrying on his pre-eminent work dealing with the structure of lignin; the Institute of Cellulose Chemistry at Darmstadt, where Dr. George Jayme, formerly of Hawkesbury, Ontario, is now busily engaged in the construction of a laboratory building which promises to be one of the largest and best equipped in the world for cellulose research; the Kaiser Wilhelm Institute of Cellulose Chemistry at Berlin-Dahlem where Dr. Kurt Hess is doing distinguished work in cellulose derivatives; at Berlin-Charlottenberg where Dr. Hermann Friese is studying sulfonates of lignin; and finally the Prussian Wood Research Institute of Eberswalde where Dr. F. Kollnan, a recent visitor to America, is directing important studies in wood structure and wood chemistry including the pulping of beechwood.

"In Scandinavia, the Central Laboratory of Finnish Industries is in charge of Dr. G. K. Bergman to service the scientific needs of Finland's pulp industry. The Institute for Cellulose Research of the Royal Technical University of Sweden is located in Stockholm. Dr. E. Hagglund, the eminent author of "Holz Chemie," is the director.

Sugar From Sawdust

"One of the leading interests at Stockholm is the production of wood sugar from sawdust and other forms of waste wood. From 100 kilograms of wood, 65 kilograms of pure wood sugar are obtained, or if fermented, 30 liters of 100 per cent alcohol are produced. The director of the Paper Industry Research Institute, Oslo, Norway, is Dr. Sigurd Samuelsen, whose studies in bleaching are well known. New work under way in the pulping of resinous conifers is of much interest and in these large scale studies Dr. Engelstad, formerly of Berlin, New Hampshire, is having a prominent part."

● The final speaker was another visitor from abroad, Dr. L. Hebbs of Cross & Bevan, London, who discussed some of the points brought out in Dr. Benson's talk. He called attention to some of the problems created by the development of new methods and products. One is in the production of casein fiber, as made in Italy, since its consumes a

food product for which cannot be substituted the wool it replaces. Cellulose from straw brings up a severe waste liquor problem, since it is a foul liquor very difficult of disposal.

He also referred to the ammonium bisulphite process now in use in Norway, saying that it has certain advantages, especially in that the waste liquor can be used and can be reduced to a powder by evaporation. In conclusion, he called attention to the problem of testing methods, caused by the use of too great a variety of methods, many of which do not produce identical or comparable results when any of the conditions are changed.

The next meeting of TAPPI will be held January 10 at Port Angeles.

Those registering at the Everett gathering were as follows:

• Jerry Alcorn, Pulp Division, Weyerhaeuser Timber Co., Everett; Niles M. Anderson, St. Regis Kraft Co., Tacoma; G. J. Armbruster, Soundview Pulp Co., Everett; Charles M. Barr, Cavin, Marshall & Barr, Seattle; H. W. Beecher, Seattle; Dr. H. K. Benson, University of Washington, Department of Chemistry, Seattle.

• L. K. Bickell, B. C. Pulp & Paper Co., Woodfibre, B. C.; G. H. Brazeau, Pulp Division, Weyerhaeuser Timber Co., Everett; Ben T. Briggs, Rayonier Incorporated, Shelton Division, Shelton; James Brinkley, James Brinkley Co., Seattle; John E. Brown, Pacific Pulp & Paper Industry, Portland; Robert E. Brown, Rayonier Incorporated, Shelton Division, Shelton; Eugene Browning, Rayonier Incorporated, Shelton Division, Shelton.

• A. M. Cadigan, St. Regis Kraft Co., Tacoma; R. D. Campbell, St. Regis Kraft Co., Tacoma; John M. Carlson, Soundview Pulp Co., Everett; R. E. Chase, R. E. Chase & Co., Tacoma; Andreas Christensen, B. C. Pulp & Paper Co., Vancouver, B. C.; Percy W. Christensen, Pulp Division, Weyerhaeuser Timber Co., Everett.

• Dick H. Cook, Chase Brass & Copper Co., Seattle; Sidney M. Collier, Puget Sound Pulp & Timber Co., Bellingham; J. V. B. Cox, Hercules Powder Co., Portland; Emil Creutz, American Heat Reclaiming Corp., New York City; R. B. Currie, Soundview Pulp Co., Everett; James D. L. Drake, Pulp Division, Weyerhaeuser Timber Co., Everett; A. E. Duke, Soundview Pulp Co., Everett.

• E. Ekholm, Puget Sound Pulp & Timber Co., Bellingham; E. O. Ericsson, Puget Sound Pulp & Timber Co., Bellingham; L. P. Fortie, Everett Pulp & Paper Co., Everett; O. E. Fox, Pulp Division, Weyerhaeuser Timber Co., Everett; J. D. Fraser, Pulp Division Weyerhaeuser Timber Co., Everett; Harold T. Fretz, Rayonier Incorporated, Port Angeles Division, Port Angeles.

• Irving R. Gard, Merrick Scale Mfg. Co., Seattle; A. S. Gerry, Pulp Division, Weyerhaeuser Timber Co., Everett; William R. Gibson, Northwest Filter Co., Seattle; Harold G. Griep, Pulp Division, Weyerhaeuser Timber Co., Everett; Don Grant, Soundview Pulp Co., Everett; W. C. Grieve, Goodyear Tire & Rubber Co., Vancouver, B. C.; H. M. Gustafson, General Electric Co., Seattle.

• John G. Hardy, Rayonier Incorporated, Port Angeles Division, Port Angeles; L. Hebbs, Cross & Bevan, London, England; L. E. Hill, Jr., Pulp Division, Weyerhaeuser Timber Co., Everett; George W. Houk, Hooker Electrochemical Co., Tacoma; R. M. Inkster, Pulp Division, Weyerhaeuser Timber Co., Everett; E. R. Johnson, Everett.

• W. A. Kelly, The Waterbury Felt Co., Portland; W. W. King, Oliver United Filters, Inc., San Francisco; M. E. Kinsey, Rayonier Incorporated, Shelton Division, Shelton; John Kjome, Scientific Supplies Co., Seattle; K. A. Knudson, Everett Pulp & Paper Co., Everett; Jack Martin, Schorn Paint Mfg. Co., Seattle; J. H. McCarthy, Soundview Pulp Co., Everett.

• G. H. McGregor, Pulp Division, Weyerhaeuser Timber Co., Everett; Donald McPhee, Pulp Division, Weyerhaeuser Timber Co., Everett; K. M. Milligan, Northwest Lead Co., Seattle; T. E. Moffitt, I. F. Laucks, Inc., Seattle; Walter Morris, Pulp Division, Weyerhaeuser Timber Co., Everett; C. T. Mueledy, Rayonier Incorporated, Port Angeles Division, Port Angeles; Joseph J. Murphy, Everett Pulp & Paper Co., Everett.

• Fred Nicholson, Stetson Ross Machine Co., Seattle; C. B. Niel, Everett Pulp & Paper Co., Everett; Adolf Orup, Soundview Pulp Co., Everett; Frederic M. Pape, Wilson & Geo. Meyer & Co., Seattle; A. N. Parrett, Rayonier Incorporated, Shelton Division, Shelton; J. W. Peckham, The Bristol Co., Seattle; Russell M. Pickens, Rayonier Incorporated, Shelton Division, Shelton; Paul Pittenger, Pulp Division, Weyerhaeuser Timber Co., Everett.

• Albert S. Quinn, Stebbins Engineering Corp., Seattle; Carl A. Ramstad, Soundview Pulp Co., Everett; H. Rehnberg, Northwest Filter Co., Seattle; Ed. F. Riley, Palmer Supply Co., Seattle; Carl Ries, Pulp Division, Weyerhaeuser Timber Co., Everett; Oliver E. Ronken, Soundview Pulp Co., Everett; Curt Rosenblad, Aktiebolaget Rosenblads Patenter, Stockholm, Sweden.

• James Ruck, St. Regis Kraft Co., Tacoma; H. Radford Russell, Everett Pulp & Paper Co., Everett; A. M. Shanahan, Shanahans Ltd., Vancouver, B. C.; Henry Solbakken, Soundview Pulp Co., Everett; S. A. Salmonson, Soundview Pulp Co., Everett; Paul Schlosser, Rayonier Incorporated, Shelton Division, Shelton; George E. Schmidt, Pennsylvania Salt Mfg. Co. of Washington, Tacoma.

• J. M. Shedd, Everett Pulp & Paper Co., Everett; Brian Shera, Pennsylvania Salt Mfg. Co. of Washington, Tacoma; H. N. Simpson, National Paper Products Co., Port Townsend; Stanley E. Sorenson, Pulp Division, Weyerhaeuser Timber Co., Everett; H. T. Stoddard, Soundview Pulp Co., Everett; Philip E. Sullivan, Ingersoll Rand Co., Seattle.

• H. V. Tartar, University of Washington, Seattle; Earl G. Thompson, Great Western Electro-Chemical Co., Seattle; Edw. A. Vohs, Pulp Division, Weyerhaeuser Timber Co., Everett; H. F. Warren, R. E. Chase & Co., Tacoma; Robert Watt, H. W. Beecher, Consulting Engineer, Seattle; Wm. T. Webster, St. Regis Kraft Co., Tacoma; Louis A. Wendt, Pulp Division, Weyerhaeuser Timber Co., Everett; Jack Wilcox, St. Regis Kraft Co., Tacoma; H. F. Winklesky, Everett Pulp & Paper Co., Everett; R. E. B. Wood, Pulp Division, Weyerhaeuser Timber Co., Everett.

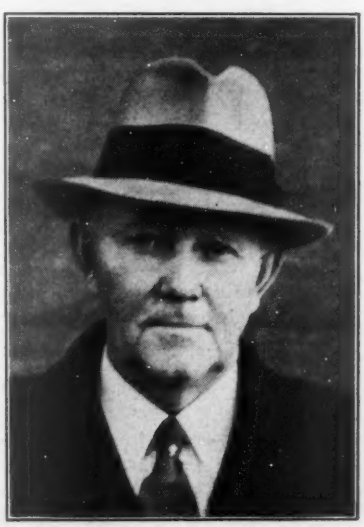
J. J. Herb Completes Half Century in the Industry

• Fifty years ago J. J. Herb started his career in the pulp and paper industry as a sweeper in an eastern mill. Today, still comparatively young and one of the most active figures in the Pacific Northwest pulp and paper business, Mr. Herb is president of a $2,000,000 corporation — Westminster Paper Company, Ltd., at New Westminster, B. C., and Pacific Coast Paper Mills, Bellingham, Wash.

Mr. Herb celebrated his half century in the business last month when he was an honored guest at a banquet in Terminal City Club, Vancouver. He was presented with a shotgun, which he soon put into use on a hunting expedition in the Cariboo country of British Columbia.

Beginning his career in a Wisconsin mill, the Thelmany Paper Mill at Kaukauna, Mr. Herb had risen to be superintendent of the plant when he moved to Ontario to build the Interlake Paper mill at Merriton.

Mr. Herb operated this mill for ten years and then came to the Pacific coast, becoming interested in the industry in British Columbia and Washington. In 1929 fire wiped out the New Westminster plant which he had established, but he soon rebuilt on a larger scale and in the years that followed built up an important domestic and export trade in paper specialties, tissues and other paper products. It is Mr. Herb's enviable boast that during his connection with the pulp and paper industry he has built four and rebuilt two plants.



J. J. HERB

Paper Milk Bottles Introduced in California

Dairies in San Francisco Bay Area and in Los Angeles Adopt Modern Single Service Containers

TRUTH, stranger than fiction, reveals a remarkable incident in the 30-year struggle to introduce the paper milk bottle. For, three decades after its invention by G. W. Maxwell, 1201 Folsom Street, San Francisco, and 10 years after its first important dealer and consumer acceptance in the East, the paper bottle for fresh milk has just returned home.

D. B. Malkson, western representative, Pure-Pak Division, Ex-Cell-O Corporation, last month installed one of his company's Pure-Pak paper milk bottle assembling machines in the Lucerne Cream & Butter Co.'s plant in San Francisco. This is one of the country's leading chain of dairies extending from Canada to Mexico and supplying the dairy products required by most of the Safeway stores. Thus fresh milk, cream, cottage cheese, chocolate milk, and other dairy products are available in the single-service type container which San Francisco has heard so much about, and which to date it had not yet seen.

It was not without opposition that the paper milk bottle was introduced in the San Francisco Bay area. In Oakland, where Claude E. Pope, well known independent dairyman, has invented a paper milk bottle of his own, which he intends to introduce in that area shortly, there was organized opposition.

Oakland had a city ordinance that milk sold in less than gallon containers had to be in glass. To permit the use of paper containers it was necessary to have this ordinance changed. Therefore, 250 grocers, and some of the smaller as well as the larger milk distributors signed a petition to change this ordinance, and allow the use of paper milk bottles.

● Despite the objections of the Alameda County Industrial (CIO) Labor Council, the East Bay Housewives League, and the League of Women Voters, the Oakland City Council approved wood fibre containers for distribution of milk in Oakland. Representatives of these organizations had claimed that use of the fibre containers would either force up the price of milk or lower its quality.

In San Francisco unidentified interests took large space in the daily newspapers stressing the advantages of glass milk bottles. For instance, in one half-page advertisement two women were depicted chatting. One said to the other: "We like to see what we buy." And the other chimed in: "In glass!" With pictures the advertisement then went on to show that in glass the cream line could be seen; that it poured more easily, and that it (glass) was the universal container. Advertisements also appeared in California grocers trade publications, and point-of-sale posters appeared in some grocery stores.

However, Malkson states that milk in paper bottles is being very well accepted in San Francisco, and also in Los Angeles where he recently installed one of his company's machines in the independent Jerseymaid Milk Products Co., Inc., plant. Another machine has since been installed in Los Angeles by the Lucerne Cream and Butter Company, and a second may be added.

The paper milk bottles which Pope plans to introduce to Oakland housewives some time this month are made, like the Pure-Pak containers, of Fibreboard pure bleached sulphite board of .027 thickness for the quart size; .017 for pints and half pints, and .030 for the gallon size.

The Pope Container

● Pope's container is four sided, tapering at the top. The bottles will be shipped flat to the bottling plant, thus eliminating storage space. Besides the bottle, Pope has also invented the machine for setting the bottle up. The containers enter the machine, are formed, enter a scalding paraffine bath of 180 degrees, are chilled and three minutes later are filled with milk.

The bottles that Pope plans on introducing come in three parts, top, bottom, and the four sides in one piece. The container forming part of his machine presses the top and bottom on the container under great pressure and they are glued on with vegetable glue. The inventor has also developed square nipples for filling machines, so that the dairyman now using glass can change over his filling machines at little cost. Bottles will be turned out by this machine at the rate of 60 per minute. Pope states that his bottle forming machine will not exceed 3,000 pounds in weight and will come within the $5,000 class in cost. At the present time Pope is forming



THE POPE PAPER MILK BOTTLE which CLAUDE E. POPE, Oakland, California, dairyman plans to introduce into that city in the near future.

a company to manufacture these machines.

For the time being the pre-formed type of paper milk container can not be used in California, since there is a state law that says that milk containers must be washed and sterilized in the same plant where they are filled with milk. However, it is thought that the next state legislature may amend this law in some way to allow the use of the preformed type of paper milk bottle.

Los Angeles Progress

● Two dairies have introduced the paper milk bottle in the Los Angeles area and both have realized immediate success. These are the Lucerne Cream and Butter Company and the Jerseymaid Milk Products Company. Lucerne has two Pure-Pak machines which are operating at a total capacity of 30,000 units per day. Jerseymaid has one machine and is now turning out 2,000 units a day. The latter company started its wholesale business, October 12, from scratch and this represents new sales volume. Lucerne has noted a substantial increase in sales as a result of the new type package.

The Jerseymaid company is a relatively new organization, having started business in Los Angeles, March 1, 1936. The company distributed at retail only at first and carried milk, cream, buttermilk, chocolate milk and butter and eggs. With the introduction of the Pure-Pak milk packaging machine, the company expanded its sales to the wholesale market and has enjoyed immediate returns, running now at 2,000 units per day, which represents a new market and new sales.

Acocrding to Pete Ciabarri, president, the market reaction has been good. The new package has not as yet actually had a very thorough try having only got under way October 12, hence figures on sales represent the first pioneering work. This was the first machine of its type in Los Angeles.

In promoting the new package, Jerseymaid company has used community papers and local radio. They tied their program into the Home Hour of Norma Young over KHJ, during which they had fifteen minutes each week telling about the new container and its advantages to the housewife. During the Food Show in Los Angeles the latter part of October, the company had a booth where they exhibited their complete line as featured in the Pure-Pak containers. They are packing cream, milk, buttermilk and chocolate milk in the paper containers and have eleven different packs, in quarts, pints and half pints.

● The Lucerene company installed their machine October 26, and according to Don Thompson, manager, the sales curve has shown a decided jump upward since the introduction of the new package. The Lucerne company distributes wholesale through the Safeway Stores, a large chain of groceries, with which they are affiliated.

Extensive newspaper advertising in all the metropolitan dailies and outlying community papers has been done in putting over the new story of the paper milk container. Twenty-four sheet posters have been placed throughout the Los Angeles area. Backing this up have been spot announcements on the radio. The public reaction, according to Mr. Thompson, has been very good.

Lucerne is packing quarts, pints and half pints in the new container of milk, cream, buttermilk and chocolate drink. The volume has already reached 30,000 units per day in the few weeks since the machine was installed.

Rayon and other CHEMICAL USES OF WOOD PULP



Japanese Rayon and Staple Yarns Decline

● Production of rayon yarn by mills belonging to the membership of the Japan Rayon Producers' Association amounted to 12,404,400 pounds during August, a decline of 198,800 pounds compared with the July output of 12,603,200 pounds, which in turn was 2,099,400 less than June production (14,702,600 pounds). The total output for the 8 months ended August 31, 1938, approximated 145,644,600 pounds, against 218,442,600 in the corresponding 1937 period and 165,100,600 in January-August, 1936. Mill stocks of rayon yarn at the end of August totaled 32,610,700 pounds, a decrease of 5,354,700 during August and a reduction of 15,595,000 pounds since the end of June. The export/import link system becomes effective in the case of cloth as of October 1 and the Japanese Department of Commerce has decided to enforce the distribution of the allotment of rayon yarn for consumption in Japan and the yen-bloc areas as of the same date. (It was previously reported that the monthly average consumption in Japan and the yen-bloc areas had been set at 15,000,000 pounds of rayon yarn.)

The output of staple fiber declined considerably during June, owing to the decision of the Staple Fiber Manufacturers' Association to curtail production because of the difficulty encountered in obtaining raw materials. The most accurate report available to the end of July placed June production of staple fiber at 27,386,000 pounds, a decline of 11,814,000 pounds, or 30.1 per cent, compared with the output in May, 1938. It is understood that production and distribution was to be placed on a quota basis beginning July 1.

Mill in Sweden Will Produce Rayon Pulp

A new modern mill for the production of bleached sulphite pulp suitable for the manufacture of artificial silk has recently been completed and is now in operation in Sweden. The new plant is situated at Svartvik in the Sundsvall district of Northern Sweden, and belongs to the large Swedish pulp and timber combine, "Svenska Cellulosa Aktiebolaget." The present capacity of the mill is about 40,000 metric tons (metric ton—2,204.6 pounds) of rayon pulp per year, but can easily be expanded to 80,000 tons. (Office of the American Commercial Attache, Stockholm.)

Italian Production of Chemical Pulp

During the first seven months of 1938 the four existing plants in Italy manufacturing chemical pulp produced 24,274 metric tons of pulp as compared with 20,431 tons produced during the same period in 1937. Imports of chemical pulp during the first eight months of the current year amounted to 179,056 metric tons, as against 158,265 tons imported during the same period in 1937. (Office of the American Commercial Attache, Rome.)

Japan Plans Big Pulp Development

A final decision has been reached by Japanese and Manchukuo authorities on the proposed establishment of a national policy pulp manufacturing company, according to a Mukden dispatch to the Nichi Nichi.

The company will be capitalized at Yen $100,000,000 under Japan-Manchukuo joint investment. Half of the capital will be invested by the Manchukuo government and the remaining half by the Japan Paper Manufacturing Association, Rayon Association, Staple Fiber Traders' Association, Oji Paper Manufacturing Company and Kanegafuchi Spinning Company.

The small Hsingan mountains are known as an abundant source of pulp wood. The proposed company plans to produce 230,000 tons of pulp a year. Three pulp plants will be built in Manchukuo. Technical sections of Oji, Kanegafuchi and the Rayon Association will cooperate with the company. (The Japan Advertiser, October 13, 1938.)

Coast Visitors

Mace Harris, manager of pulp manufacture, and R. W. Wennerlund, sulphite superintendent for the Northwest Paper Co. at Cloquet, Wis., were recently on the Coast visiting pulp and paper mills and logging operations.

H. J. McKenzie, manager of the Export Sales Co., Ltd., Vancouver, who are selling agents in the Orient for Pacific Mills, Ltd., and the Powell River Co., visited along the Coast early in November. With him was Mr. Hill, Yokohama manager for Dodwell & Company, importers of pulp and paper from West Coast mills. Harry Pim, export sales manager for Pacific Mills, also accompanied them, en route to San Francisco to sail Nov. 8 on the first leg of a 'round-the-world sales trip.

Paul Sletton, manager of the Minneapolis office of Crown Zellerbach Corporation, and James Kincaid, manager of the Omaha office, visited the Coast late in October. They were in San Francisco, then came to Portland and Camas, where both were formerly employed.

T. J. Burke, secretary of the Sulphite Paper Manufacturers' Association, toured the various mills early this month.

Leonard McMaster of the Asten-Hill Manufacturing Co., Philadelphia, has been on one of his regular western trips, calling on the mills with Walter Hodges. L. M. Hart of Rice, Barton & Fales, Worcester, Mass., is another recent visitor.

Machinery Being Installed In Anacortes Paper Plant

Machinery for the first unit of the Anacortes Paper Products Co. arrived from Portland late in October, and installation work was started. The new firm, headed by A. D. Bowen, will make roofing and wrapping paper.



FRED A. OLMSTED, Recently Appointed Technical Supervisor, Crown Willamette Paper Co., Division of Crown Zellerbach Corp., at Camas, Washington

Newsprint Price to Be $50 For Coast Mills

● Pacific coast newsprint mills will follow the lead of eastern mills in settling their price for the coming year. As International Paper, M & O and several eastern companies have announced that $50 will continue as the base price delivered to New York, the same figure will apply to newsprint sold by the two British Columbia producers, Powell River Company and Pacific Mills, Ltd.

Officials of Powell River Company said that it was unnecessary to reaffirm their position regarding prices, as all their contracts contained a clause specifying that the delivered New York price would be effective respecting 1940 business. There was no official statement from Pacific Mills, but it is presumed that the competitive nature of the business will result in a similar figure being adopted.

William Barclay, manager of Powell River Sales Company, which markets all Powell River newsprint on this continent, says that volume continues weak and that expectations concerning fall business pickup had not materialized, although strong hopes were entertained for the coming year.

Elimination of the Oriental market has been a serious blow to Pacific newsprint mills, and there appears to be small prospect of improvement in that field as a result of continued Sino-Japanese hostilities, the collapse of Chinese buying power and the difficulties in obtaining credit by Japanese importers. Newsprint operators in the Pacific Northwest have left the Orient out of the picture entirely in considering market prospects for the coming year, although there is a general feeling that when peace is restored in the Far East a sharp recovery in demand from that quarter may take place. The situation, however, is too uncertain to justify any predictions, and even the best informed newsprint men are maintaining a discreet silence.

Supporters of the $50 price protected themselves this year by holding off until Great Northern Paper Company announced its $48 contract arrangement for the coming year. In past years International has been the first to commit itself to a price policy, and last year when the rate was announced in the spring Great Northern and other companies undercut the $50 figure. By waiting until Great Northern made its announcement, the other companies safeguarded themselves against the possibility of Great Northern or some other concern breaking the price structure.

Sid Drew in East

E. G. "Sid" Drew of the J. O. Ross Engineering Corporation, left Portland October 25 for Chicago and New York. He is expected back at the old stand the latter part of November.

Schaub Flies East

Charles Schaub, president of the Pacific Straw Paper & Board Co., Longview, Washington, left the latter part of October on a brief trip east. He visited Chicago, Toronto, etc., making the trip by air, and returning to the plant November 3. This was his first extended air flight, and we understand he returned enthusiastic about this means of travel.

Bloch Presents Service Pins

● Louis Bloch, chairman of the board of the Crown Zellerbach Corporation presented a 40-year service pin to John Lewthwaite on September 17th. At the same time Mr. Bloch presented 20-year service pins to J. R. Frum and to Miss Grace Riggs of the corporation's Portland office.

Beaton Visits Mills In Washington, Oregon

● N. Beaton, resident engineer of the Powell River Company of Powell River, B. C., visited pulp and paper mills in Washington and Oregon during the early part of October.

Heron Addresses Society

Speaking before the Oregon Mental Hygiene Society in Portland on November 1, A. R. Heron, director of industrial relations for the Crown Zellerbach Corporation, discussed "The Psychology of Personal Relationships in Business and Industry."

Pointing out that to the western mind, happiness is in hope for the satisfaction of desires, Mr. Heron said, "We must face the need of having desires—of identifying them, weighing their worthiness, pursuing them.

"In the simplest of words, we must recognize that the price of satisfaction of our desires is giving satisfaction to the desires of others. Listing our wants, learning and understanding the wants of those with whom we deal—this, to me, is the meaning of the psychology of personal relationships in business and industry."

Bleaching Capacity Increased By St. Helens Mill

The St. Helens Pulp & Paper Co has completed installation of a new horizontal wood tank of 10-ton capacity, to provide additional bleaching capacity. It was constructed by the National Tank & Pipe Co. of Portland.

Weyerhaeuser Golfers Finish Tournament at Everett

● After two months of battling the golfers at the Everett mill, Pulp Division, Weyehaeuser Timber Company, finished up their tournament early in October. The tournament, played at the Cedarcrest course, ended with Hank Stratton winning the first flight and Ed Norton as runner-up.

In the second flight Harry Anderson won over Jim Duggleby, while in the third flight Marty Christianson beat Bill Kasch.

Dave Carlson won the fourth flight by taking Sten Sorenson into camp. The winners collected handsome merchandise prizes for their summer of golfing.

George Houk Back After Siege of Illness

● George W. Houk, sales executive of the Hooker Electrochemical Company, Tacoma, Washington, returned to work early in October after two months of illness and convalescence.

In August Mr. Houk underwent a serious operation, rapidly recovered but suffered a setback when he contracted influenza. After another two weeks in bed to get rid of the flu he was fully recovered.

The Japanese Market For Wood Pulp

A Summary of a Report Submitted by Carl H. Boehringer, Assistant Trade Commissioner at Tokyo, U. S. Department of Commerce

● Wood pulp imports into Japan during the second quarter of 1938 included only 3,848 short tons of pulp for paper-making, and 51,173 short tons of rayon pulp, a total of 55,021 short tons, representing a decline of 33 per cent from the preceding quarter and 60 per cent from the corresponding quarter in 1937. The following tables summarize imports of wood pulp into Japan by quarters during 1936, 1937, and 1938.

It will be noted that imports during the second quarter of 1938 were the smallest for the period reviewed in the foregoing table. The outlook for the remainder of 1938 points to further restriction of arrivals, owing to exchange and import restrictions.

Unless some action is taken on the long pending matter of granting exchange permits for the second quota of 58,000 metric tons (63,933 short tons) of rayon pulp, it is obvious that arrivals of such pulp will gradually decline to nothing during the next few months. In the case of pulp for paper-making, no new import or exchange permits have been granted and it is predicted that imports will likewise decline to zero during the closing months of 1938.

Paper Pulp Imports Drop

Imports of wood pulp into Japan during the first half of the current year amounted to 113,324 tons for rayon pulp and 24,195 tons of paper pulp, the former representing a decline of 14.4 per cent, and the latter a decline of 75.3 per cent compared with the corresponding period in 1937. The following table summarizes imports in short tons during the first half of the years 1936 to 1938, inclusive, including the percentages supplied by the leading countries:

(Volume in short tons)

	1936	1937	1938
Paper pulp	89,547	97,853	24,195
Rayon pulp	81,918	132,307	113,324
Total	171,465	230,160	137,519
Percent from:			
United States	46.7	37.9	40.6
Sweden	17.2	28.8	17.5
Norway	17.0	15.0	14.9
Canada	8.5	10.2	13.6
Finland	10.0	7.9	9.7
Other countries	0.6	0.2	3.7

● Information available indicates that arrivals of wood pulp from Manchuria have begun to achieve significant proportions. These imports are included under the heading "other countries." During the first seven months of 1938 imports from these unspecified areas, including Manchuria, aggregated 7,003 short tons, while imports during the corresponding period in 1937 were only 299 tons. Indications are that practically all of the imports from "others" were received from Manchuria.

(Volume in short tons)

Period	For Rayon Mfgr.	For Paper Mfgr.	Total
1936			
1st quarter	38,424	50,081	88,505
2nd quarter	43,777	39,180	82,957
1937	50,994	39,062	90,056
1st quarter	81,313	58,791	140,104
2nd quarter			
1938			
1st quarter	62,151	20,347	82,498
2nd quarter	51,173	3,848	55,021

Domestic Prices Held Down

A serious effort has been made by the Department of Commerce and Industry to keep prices quoted on domestic rayon pulp from rising to higher levels. On May 3 it was reported that the Department held that the Oji Paper Manufacturing Company, the leading producer of wood pulp in Japan, should reduce its price for rayon pulp to below 17 sen (sen equals $.0028 United States currency) a pound and mention was made of a price level of about 15 sen per pound. The subject continued to receive attention during July and August. Early in September the Oji Paper Manufacturing Company announced it would sell its domestically produced rayon pulp at a fixed price of 17 sen per pound. On September 6 it was reported that the Department of Commerce and Industry took the view that the maximum price for domestic rayon pulp should be fixed at the quotation announced by the Oji Company.

The Department on August 30 issued a note giving details of the operation of the rayon export and pulp import link system which went into effect on August 1 for yarns and was scheduled to go into effect on October 1 for textiles. Under this scheme 140 pounds of pulp can be imported for each 100 pounds of rayon yarns exports, and 155

pounds of pulp can be brought in for each unit of rayon textile containing 100 pounds of rayon yarn. The Department also adopted the policy of prohibiting the Japan Silk and Rayon Textiles Traders' Guild Federation and the Cloth Export Guild Federation holding stocks of rayon textiles exceeding a two-month supply based on stocks held during the first 5 months of the current year. Pulp imported under this system may be used only for the manufacture of export goods.

The extension of the link system to exports of paper against imports of paper pulp is predicted, according to a report released by the "Nippon Kogyo Shimbun" on September 1. It appears that the Department of Commerce and Industry will adhere in principle to the policy of not permitting from next year any more importation of paper pulp except through the link system.

New Pulp Plants Banned

● One of the most significant developments in recent months is the announced change of policy of the Japanese Government concerning the establishment and expansion of the domestic pulp industry. Hitherto, the Government favored maximum expansion of the industry in accordance with the 5-year pulp self-sufficiency plan. In June, however, a complete about-face was announced, and on July 17 the "Nippon Kogyo Shimbun" of Osaka reported that the Government has decided to adopt a strict licensing policy for pulp making projects by application of the emergency law relating to investments in industrial enterprises. Further control over the Japanese pulp industry is indicated by a report dated June 13, released by the above "Nippon Gogyo Shimbun." In connection with the suggestion of the Department of Commerce and Industry for the drafting of a concrete plan for the control of the pulp industry, it was stated, the Oji Paper Manufacturing Company has completed the draft of an outline of a control organization. The plan has been sent to various pulp companies concerned for approval in the near future.

Although details of the plan were not available, it is reported that the name of the control organization will probably be the Japan Pulp Industrial Association. Members will include not only all domestic companies in Japan but other rayon and paper pulp companies in Chosen, Taiwan, Karafuto, Manchuria, and North China, in order to control supply and demand of pulp in the Japanese Empire. For the time being the association will serve as an autonomous control body, that is, without direct Government supervision. In contrast with the industrial association plan proposed by the Department of Commerce and Industry, the pulp industrialists concerned will adopt the system of an autonomous cartel system, planning to expand the control activities steadily, the Osaka paper asserts.

Quotas and the Link System

● The Department of Commerce and Industry on March 12, 1938, decided to allow importation of 58,000 metric tons (63,933 short tons) of rayon pulp in addition to the 58,023 metric tons (63,959 short tons) allowed importation during the first 4 months of the year, the latter representing unfilled contracts from 1937. Since June rumors have been current that the Department has decided to cancel import permits for the 63,933 tons which had been approved on March 12. Upon investigation it was ascertained that the matter was still held in abeyance, owing to the fact that the Finance Ministry had not yet granted the necessary exchange permits.

The amount of rayon pulp contracted for by Japanese companies with foreign concerns is very large. The "Japan Weekly Chronicle," Kobe, on July 14 stated that at that time these contracts involved 326,281 short tons, including the 63,933 tons mentioned above.

No further imports of paper pulp will be allowed during 1938, according to the trade and press reports. As indicated in the foregoing section, it is unlikely that any imports of paper pulp will be permitted during 1939 unless through the link system of import and export. The current restrictions on consumption of printing paper, including newsprint, will cause domestic production and consumption of paper pulp to be just about equal, eliminating the need for further importation for the time being.

Mention of the amount of rayon pulp needed from abroad in 1939 was made in a report released by the "Nippon Kogyo Shimbun" on August 10, 1938. This paper reported that the Commodity Adjustment Bureau of the Department of Commerce and Industry has decided to start drawing up plans for control and adjustment of the supply and demand for rayon pulp in 1939. It was indicated that studies would be made in September with special regard to production and imports. According to officials of the department, the 1939 output of rayon pulp in Japan Proper (including Hokkaido), Karafuto, and Chosen is estimated at 187,391 short tons to 198,414 tons besides 16,535 short tons to 22,046 tons likely to be supplied by mills in Manchuria. With the domestic supply estimated at about 209,437 short tons, the officials concerned expect that imports in 1939 will amount to between 176,368 and 187,391 tons.

Japanese Pulp Production

● Production of wood pulp in Japan during 1938 has thus far failed to surpass the record breaking level attained during 1937. Primary causes include restriction on imports of timber which has caused the demand for domestic supplies to increase appreciably, difficulties in transportation of pulpwood from Karafuto to Japan Proper, and restricted imports of casein, rosin, and other materials.

Production of wood pulp by members of the Japan Paper Manufacturers Association reached a total of 195,010 short tons during the second quarter of 1938, bringing the aggregate output for the first 6 months up to 380,526 short tons. The quarterly figures represent a gain of 5 per cent over the preceding 3 months but are 9 per cent below the amount recorded for the second quarter of 1937. The volume of wood pulp production for the 6-month period is 6 per cent under the corresponding 6 months in 1937, but is 4 per cent greater than for the first 6 months in 1936. The following table summarizes production during the first 2 quarters of the current year compared with 1937:

(Volume in short tons)

Period	1937 Mechanical	1937 Chemical	1938 Mechanical	1938 Chemical
1st quarter	92,635	96,902	93,138	92,378
2nd quarter	98,283	116,804	97,942	97,069

The Sulphite Pulping of Douglas Fir

by E. B. BROOKBANK*

Abstract

SINCE it has been estimated that the amount of Douglas fir slabwood cut per annum is equal to about 2,000,000 tons of pulp, and since this slabwood is from 90 to 95 per cent sapwood, successful pulping of this waste would open up a new source of raw material to Pacific Coast pulp mills. The sample of wood used contained 17 growth rings per inch in the heartwood and 38.5 in the sapwood. The sapwood constituted 15 per cent by volume and 20 per cent by weight of the entire log.

The sulphite cooking liquor contained 1.25 per cent combined and 6 per cent free sulphur dioxide. The liquor ratio used was 7 to 1. Cooking conditions were selected so as to keep the action as mild as possible and to allow a fairly long period at moderate temperatures for penetration and sulphonation before raising the temperature to the maximum value. It was found that sapwood and a mixture of 85 per cent sapwood and 15 per cent heartwood by weight (representative of slabwood) could be pulped in ten hours at 140-145° C. Because of their unusual physical properties, the application of Douglas fir pulps offers some interesting possibilities. The high tear and low apparent density indicate their use in building properties into a sheet which are not attainable with the pulps now on the market. While the color of the unbleached pulps will probably limit their use to those grades where color is not important, such as wrapping and deeply dyed cover stock, the bleached pulps might well be applied to such grades as toweling, bond, printing, mimeo, and various specialties. The unusual chemical properties of high alpha-cellulose and low pentosans suggest the application of these pulps to the manufacture of cellulose derivatives. The chemical data indicate that the purification of these pulps would be less expensive than that of pulps lower in alpha-cellulose.

Introduction

THE pulping of Douglas fir (Pseudotsuga taxifolia Britt) has been of interest to many investigators; one of the principal reasons for this interest is the tremendous amount of wood which occurs along the Pacific coast in British Columbia, Washington, Oregon, Idaho, and northern California. At present, the lumber industry is the sole consumer of this species, and, because of the large size of the trees, much wood is lost as slabs which are either burned or put through expensive cutting operations in making such articles as laths and broom handels. Greeley[1] in 1928 estimated the amount of slabwood available for pulping from this region as 4,000,000 units of chips (1 unit—200 cu. ft.) or 2,000,000 tons of pulp per annum. Of this quantity, approximately five-sixths is Douglas fir. The supply is plentiful and will remain so for many years to come.

There are two varieties of Douglas fir, the coast type and the mountain type. The latter variety is of little interest at present from the pulping point of view, for its habitat is not accessible to pulp and paper mills, but the coast variety grows in extensive stands near the established mills of the Northwest. In the present work, the term Douglas fir will refer only to the coast type of the species.

Very little information is available as to the proportion of sapwood in Douglas fir. Hayward[2] states that there may be as much as 4 inches of sapwood in a 48-inch diameter log, corresponding to 31 per cent by volume. The specimen used in the present work contained only 15 per cent sapwood by volume in a 27-inch log. The estimated amount of sapwood in slabs from the average sawmill operation is 90 to 95 per cent by volume, corresponding to approximately 98 per cent by weight. Thus it may be seen that any pulping operation based on the utilization of sawmill waste would be concerned principally with the sapwood of the tree.

Although it is a generally accepted fact that cooking Douglas fir with a calcium base sulphite liquor leads to an unsatisfactory pulp with regard to both yield and quality, very few references to laboratory or semi-commercial scale work on this point can be found in the literature. Wells and Rue[3] state that ". . . (Douglas fir) reduces with difficulty on account of the pitchy character of the wood." They report the following estimates of mill scale operation when pulping this species: "Yield, 45-50 per cent; bleach requirement, 20-25 per cent, with unbleached pulp of fair strength and poor color; probably somewhat pitchy."

● English, Green, Mitchell, and Yorston[4] have reported on the rate of pulping of alcohol-benzene extracted Douglas fir sawdust, using calcium base liquor, but they consider their data only in its relation to an understanding of the factors which affect sulphite pulping in general. After 7 hours' cooking, without digester relief, at 130° C., and using acid analyzing 5.59 per cent total and 0.80 per cent combined sulphur dioxide, a pulp containing 6.21 per cent lignin and 0.428 per cent sulphur was obtained.

Beuschlein[5] compared the pulping rate of alcohol-benzene extracted Douglas fir sawdust with that of white spruce, using soda base liquors. At 150° C. and using a liquor containing 4.00 per cent total and 1.00 per cent combined sulphur dioxide, a Douglas fir pulp containing only 3.8 per cent of noncellulosic matter was obtained. The spruce cellulose yield was approximately 1 per cent higher than that from Douglas fir. Based on these results, it was concluded that it is not the extractives which make the pulping of Douglas fir difficult. The only other alternative is that there exist fundamental differences in the chemical or physical structure of

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● **"Pulps satisfactory with respect to yield and quality were obtained from Douglas fir heartwood, sapwood, slabwood, and the entire tree by the usual sulphite process. It was not found necessary to use any chemical pretreatment or special base in the cooking liquor to accomplish this, contrary to the findings of other investigators as reported in the literature."**

the lignin. Working along similar lines, Bailey[6] investigated the lignosulphonic acid obtained from Douglas fir and concluded that lignin from this tree consists of four trimeric coniferyl aldehyde units, whereas spruce lignin is composed of three. This work was based on the theories of lignin structure advanced by Klason[7].

Benson, Erwin, Hendrickson, and Tershin[8] pulped young Douglas fir (3-inch diameter logs), using ammonia base liquors, and obtained satisfactory pulps, similar in properties to pulps from spruce and Western hemlock. Old wood gave negative results, but old wood extracted with ammonia pulped satisfactorily. The action of ammonia base sulphite liquor on sprucewood has been found by Doree and Barton-Wright[9] to yield the same lignosulphonic acid as is obtained when calcium bisulphite is used; this indicates that successful pulping with ammonia base liquors is dependent on the reaction between ammonium bisulphite and the extractives of the wood, rather than on differences in behavior of calcium and ammonia base liquors toward the lignin.

With the exception of Benson and his coworkers[8], none of the abovementioned investigators have specified the source, growth rate, density, or location in the tree from which their wood was obtained. Benson obtained good pulp with no pretreatment of the wood when using young Douglas fir trees up to three inches in diameter. Although no definite information is available on the point, it seems reasonable to assume that trees of this size were composed entirely of sapwood. There are considerable data in the literature pointing out differences in composition, colloidal nature, and pulping properties between sapwood and heartwood. Herty[10] obtained sulphite pulp of good quality from young southern pines as long as no heartwood was present.

Schwalbe and Ekenstam[11] investigated the colloidal properties of the sapwood and heartwood of pine and spruce in an attempt to explain the differences in behavior on cooking noticed by other investigators. It was found that sapwood approached the properties of heartwood on aging after cutting. Experiments on the adsorption of sulphite liquor by the various kinds of wood showed pine to behave similarly to spruce, but pine heartwood adsorbed the liquor in different concentrations than the other woods. The amount of free sulphurous acid adsorbed by pine heartwood was so small that any cooking operation would have to be considered as a neutral sulphite process. While no similar work on Douglas fir could be found, it is probable that analogous behavior would be observed in the sapwood and heartwood of this species.

Object of Investigation

SINCE there is an almost unlimited supply of Douglas fir sawmill waste, consisting principally of slabwood which is 85 to 90 per cent sapwood, any pulping operation utilizing this waste would deal almost exclusively with sapwood. The purpose of this investigation was the study of the sulphite pulping of Douglas fir using calcium base liquors and no pretreatment. In the light of the success which has attended the pulping of pine sapwood, it was believed that the pulping of Douglas fir slabwood is possible and commercially feasible. The pulping of heartwood and of sapwood has been carried out separately with the object of evolving cooking conditions within the present commercial limits for the reduction of both slabwood and entire logs.

An investigation of the lignin of Douglas fir sapwood and heartwood was carried out for comparison with similar lignin derivatives prepared from sprucewood. Any differences found in amount or kind of lignin among the several types of wood might explain their differences in behavior on cooking. An investigation of the kind, amount, and distribution of extractives in Douglas fir heartwood and sapwood was also made for the same purpose.

Raw Material

● The Douglas fir log used in the present work was obtained from a Pacific Coast sawmill and was cut in the spring of 1937. The log was chosen as representing the average from this region with respect to size and growth conditions. Both ends of the log were painted before shipment to minimize moisture loss and aging in transit. The log was received at The Institute of Paper Chemistry with bark intact.

A density disk, approximately 1 inch in thickness was cut from the log at a distance of 4 feet from one end. This disk was barked, the average diameter calculated from the circumference, and the number of growth rings counted; a separate count of the growth rings in the sapwood was made.

The following method was used in making density measurements: The density disk was weighed, dried to constant weight at 105° C. and cut into pieces of a size convenient for use in the subsequent operations. The dry pieces were dipped in molten paraffin. After cooling, their volume was determined by immersion in water, the volume of the water displaced being measured. In the case of Douglas fir, the density of the sapwood was determined by cutting away all heartwood and making separate volume and weight measurements on the sapwood pieces so obtained. From these data, the moisture content of the wood before chipping and the growth rate and density of both the heartwood and sapwood were calculated; from the relative amounts of sapwood and heartwood in the log, the same values for the entire tree were calculated. Similar measurements were made on the spruce and Western hemlock logs used in making comparison pulps. The data obtained are shown in Table I.

Wells and Rue[3] report the following average fiber lengths for spruce, Douglas fir, and Western hemlock; spruce, 2.8 mm., Douglas fir, 4.8 mm., Western hemlock, 3.3 mm. A study of the data in Table I shows that Douglas fir sapwood has an unusually high density, due to its extremely slow growth rate. Because of this fact, together with the extra long fiber length, Douglas fir pulps should possess several unusual properties. The high density should be advantageous in increasing yields of pulp per digester, while the long fibers should result in high tearing strengths.

Since average values for the amount of sapwood to be expected

in Douglas fir logs could not be found in the literature, data on the diameter and the sapwood thickness for a large number of commercial Douglas fir logs were obtained from a mill engaged in the manufacture of lumber from this species[12]. All of the logs measured were from one stand and were not necessarily representative of the logs found in other localities. Nevertheless, the data indicate the general range of values which might be expected. On logs ranging in diameter from 16 to 40 inches, the thickness of the sapwood layer ranged from 1.25 to 2.25 inches, corresponding roughly to about 15 per cent of the tree. It is the practice in this particular mill to allow 2 inches on the diameter for slabbing cuts, from which the average amount of sapwood to be expected in sawmill slabs has been estimated as over 90 per cent by weight.

Samples of Douglas fir sapwood and heartwood were analyzed for lignin, alcohol-benzene solubility, Cross and Bevan cellulose, pentosan content of the Cross and Bevan cellulose, pentosan content of the wood, acetyl groups and ash, using Institute methods. The analysis of the sprucewood used in this work was obtained from Institute files; a representative analysis of Western hemlock wood was obtained from the Forest Products Laboratory at Madison, Wisconsin[13]. The data for these analyses are presented in Table II. It should be noticed that, contrary to general opinion, Douglas fir wood is not a resinous wood as judged by alcohol-benzene solubility. Another observation worth noting is the low pentosan content of the fir as compared with that of spruce.

Practical Pulping Experiments

THE following procedure was used in making the experimental sulphite pulps. A weighed charge of air-dry chips of known moisture content was packed into the digester, which was heated with indirect steam and provided with forced liquor circulation. Cooking acid, previously prepared and adjusted to 6.00 per cent free and 1.25 per cent combined sulphur dioxide, was admitted through the bottom until the liquid level in the digester was 2 inches below the top flange. This was done regardless of the amount of acid required, as experience has shown that a slight variation in the gas volume above the liquor causes more variation in the pulp than a slight variation in the liquor ratio does. The quantity of acid required was measured by means of a calibrated gauge glass on the acid tank. The greatest variation observed in the ratio of liquor to wood was 7.1 plus or minus 0.25. After charging the digester, the cover was bolted on and the digester pressure immediately raised to 85 pounds per square inch (gauge) by means of the injector and a cylinder of commercial nitrogen gas. The circulating pump was then started, and steam was admitted to the heater at such a rate as to follow the predetermined temperature schedule. Gas was relieved from the digester, as necessary, to keep the pressure constant at the desired value of 85 pounds per square inch.

During the last fifteen minutes before blowing the pressure was relieved at constant rate to 50 pounds per square inch, at which point the digester was blown. The cover was removed and any pulp remaining in the digester and blow line washed into the blow pit with hot water. Before the watse liquor was drained from the pit, a piece of unbleached muslin cloth was securely tied over the drain valve to catch any fibers which might have washed through the false bottom.

After the waste liquor had been drained off, the stock in the pit was flooded with hot water and agitated vigorously for 15 minutes, and the water was drained off. The pit was filled a second time with hot water and stock was stirred for another 10-minute period, after which it was allowed to drain slowly overnight.

All pulps were screened on a small laboratory size Valley flat screen equipped with a plate cut with 0.010-inch slots. The rejections from the screening operation were dried to constant weight at 105° C. The screened pulp was pressed to a density of approximately 25 per cent, broken into small lumps and thoroughly mixed on a large table. It was then stored in an air-tight container; triplicate moisture samples were taken as the can was filled. The wet weight of the pulp in the can was determined and the oven-dry weight calculated from the moisture content. The weight of the screenings was added to that of the screened pulp to determine the total yield. All yield figures are based on the weight of oven-dry

TABLE I

Density and Growth Rate of Wood

Wood.	Average Diameter In.	Growth Rings: Total No.	Growth Rings: Per Inch	Specific Gravity	Density Lb./Cu. Ft.	Pct. of Tree: Vol.	Pct. of Tree: Wt.
Douglas Fir—Whole Tree	27.2	259	19.1	0.51	32.2	100	100
Sapwood	2.6	56	38.5	0.76	47	15	20
Heartwood	24.6	209	17.0	0.48	30	85	80
Spruce—Log 1	6.8	132	19.4	0.52	33	....	....
Log 2	6.4	66	10.3	0.49	30	....	....
Western Hemlock	21.2	488	23.0	0.47	29	....	....

TABLE II

Chemical Analyses of Wood Samples

Wood.	Alcohol-Benzine Solubility Pct.	Lignin Pct.	Pentosans in Cross & Bevan Cellulose Pct.	Pentosans in Cross & Bevan Cellulose Pct.	Pentosans Pct.	Acetyl Groups Pct.	Ash Pct.
Douglas Fir Sapwood	2.17	29.4	60.8	5.9	8.54	1.15	0.36
Douglas Fir Heartwood	3.13	28.6	61.5	6.0	8.68	0.48	0.12
Spruce	4.01	29.3	61.9	10.4	13.9	1.59	0.31
Western Hemlock	2.8	30.5	59.3	.....	9.6	.....	.....

● "Although many investigators have described Douglas fir as a resinous wood, actual analysis of the wood shows this idea to be erroneous. The alcohol-benzine solubility of both the heartwood and sapwood of this species is lower than that found for spruce or Western hemlock, and this fact is also observed in the analysis of the unbleached pulps. The ether solubility of unbleached Douglas fir pulps is also lower than that of spruce or Western hemlock, indicating that unbleached Douglas fir pulps would cause little or no pitch trouble on the paper machines."

wood charged to the digester.

Those experimental pulps which fell within the range of reasonable bleach consumptions were bleached by a two-stage procedure consisting of chlorination, neutralization with caustic soda and a hypochlorite bleach at controlled pH. At the end of the bleaching period, the pulp was thoroughly washed with warm water, pressed to a density of approximately 25 per cent, and stored in moisture-tight containers pending physical evaluation.

● All of the unbleached and bleached pulps which had any promise of commercial value were evaluated in the Abbe pebble mill, and test sheets were made by TAPPI Method T 205 m. The test sheets were conditioned at 65 per cent relative humidity and 70° F. for at least 8 hours, care being taken to approach the equilibrium condition from the wet side. The sheets were evaluated for burst ratio, tear factor, basis weight, M. I. T. folding endurance, apparent density, and opacity. The last test was applied only to the bleached pulps. All physical tests were made by Institute methods. In addition to the above physical evaluation, permanganate numbers and bleach consumption were determined on the unbleached pulps. The method of sampling for these two determinations was as follows: Approximately 500 grams of the unbleached pulp, taken in a representative manner from the entire cook, were diluted to about 2 per cent consistency and stirred thoroughly for 20 minutes. The samples actually used in making the determinations were taken in small amounts from this large average sample. It was felt that this method insured values for permanganate numbers and bleach consumptions more nearly representative of the entire lot of pulp than any method of grab sampling.

The best Douglas fir pulps from sapwood, heartwood, slabwood, and the entire tree, together with the two comparison pulps from spruce and Western hemlock, were chosen for chemical analysis. The following determinations were made, using Institute methods: lignin, alpha-cellulose, cuprammonium viscosity, pentosans, ether solubility, ash, alcohol-benzene solubility (on the unbleached pulps only), and copper number (on the bleached pulps only). The data obtained are presented later.

The raw material variables which influence sulphite pulping are species, chip length, wood density, and wood moisture content. Of these, only the species variable was changed. The species of wood pulped were spruce, Western hemlock, and Douglas fir heartwood and sapwood. Cooks were also made of mixtures of Douglas fir heartwood and sapwood representing slabwood and the entire tree. For the slabwood cook, 15 per cent of heartwood by weight was mixed with the sapwood. This mixture was chosen as being richer in heartwood than would actually be found in sawmill waste. The mixture representing the entire tree was composed of 85 per cent heartwood by weight.

Although the chip moisture content for the different kinds of wood varied, the moisture content of any one kind was constant over a very small range. The small variation which did occur was occasioned by the slight drying of the chips which took place during storage. It is felt, however, that this variation was so small as to be insignificant.

All chips used in this work were cut with the same knife setting on the chipper and were screened and sorted in the same manner. Thus this variable was effectively eliminated.

As has already been stated, acid composition, digester pressure, gas volume in the digesters, and liquor ratio were constant within a very narow range for all cooks made.

● In selecting cooking conditions for the first cooks, an attempt was made to keep the action as mild as possible and still maintain the cooking variables within the commercial range. For this reason a comparatively low maximum temperature of 134° C. was used. The temperature was brought up to this point very slowly after an initial rapid rise to 90° C. The temperature schedule used for the first few cooks is designated as Schedule 1 (See Fig. 1) and is given in detail below.

Schedule No. 1

From °C.	To °C.	Time, Hours	Total Elapsed Time, Hours
20	90	1.0	1.0
90	100	0.5	1.5
100	110	1.0	2.5
110	118	4.0	6.5
118	134	4.0	10.5

Hold at 134° C. until end of cook.

This schedule was of the concave type in order to provide a greater time interval for sulphonation at comparatively low temperatures. Another schedule was used and will be presented later.

The maximum digester pressure in all cooks was 85 pounds per square inch (gauge). The pressure was reduced uniformly to 50 pounds per square inch during the last 15 minutes of the cook; all cocks were blown at this final pressure. This maximum pressure falls in the middle of the range of cooking pressures used in present commercial sulphite operations, but the relief period at the end of these cooks was cut short. This short relief period was used in order that cooks might be blown on short notice. In most cases the endpoint of the cook was determined by the color of the cooking liquor; hence, a short relief period made it possible to blow the cooks 15 minutes after the liquor sample indicated that cooking had progressed to the point desired. Any operation involving a longer relief period would require an increase in the total cooking time in order to obtain a pulp with the same degree of delignification.

In most cases cooking time was determined by the color of the cooking liquor. Precipitation of the cooking liquor was observed in several of the cooks, and, as this was followed (within 15 to 30 minutes) by noticeable burning of the pulp, those cooks were blown as soon as possible after precipitation started in order to minimize this effect. The phenomena of burning and precipitation will be discussed in more detail later.

● Two sapwood cooks, one of 12.25 hours (D-3) and one of 13.75 hours (D-4), were made using

Schedule 1. Both of these cooks produced satisfactory pulps from the standpoint of yield and quality. A heartwood cook (D-5) made under these same conditions with 13.75 hours' total cooking time was found to be raw. Using Schedule 1, two more heartwood cooks were made, the first of 16 hours' duration (D-6). This pulp was badly burned, and the waste liquor contained a considerable amount of an inorganic precipitate, which was found to contain both calcium sulphite and calcium sulphate. Free sulphur may have been present, but it was not identified. Cook D-7 made with heartwood chips under the above conditions and blown after 14.75 hours showed a waste liquor which was somewhat cloudy but had an orange-red color. At a later date, another heartwood cook (D-18) was made under these same conditions and was blown after 14.5 hours. The waste liquor from this cook was clear at the time of blowing, showing that with the cooking conditions used, precipitation occurred some time between 14.5 and 14.75 hours' cooking time.

Several cooks were made at higher maximum temperatures. It was felt that, with a more rapid temperature rise to 145° C., a satisfactory pulp might be obtained before burning occurred. For this reason a sapwood cook (D-9) was made according to Schedule 2 (see Fig. 1) given below. This cook resulted in a satisfactory pulp after 10 hours.

Schedule No. 2

From °C.	To °C.	Time, Hours	Total Elapsed Time, Hours
20	90	1.0	1.0
90	100	0.5	1.5
100	110	1.0	2.5
110	120	2.0	4.5
120	145	4.0	8.5
Hold at 145° C. until end of cook.			

Cooks made using Schedule 2, but at maximum temperatures below 145° C., had the same rate of rise from 120° C. to the final maximum temperature.

It was found that heartwood could not be pulped at 140° C. without precipitation of the cooking liquor and the attendant burning of the pulp. Cooks made at this temperature were found to be incompletely pulped, although the waste liquor showed the presence of large amounts of precipitate.

• Mixtures of sapwood and heartwood chips representing slabwood and the entire tree were pulped. The slabwood mixture (D-19) was pulped in 10 hours using Schedule 2 and a maximum temperature of 140° C. The mixture representative of the entire tree was pulped at a maximum temperature of 134° C. in 14.25 hours, using Schedule 1.

Comparison pulps were made from spruce and Western hemlock using cooking conditions similar to schedules actually in use in present commercial operation.

The data obtained in making the experimental cooks are summarized in Table III.

It is apparent from these data that Douglas fir, either as slabs or as whole logs, can be pulped by the sulphite process without any pretreatment or deviation from the range of conditions used in present commercial operation. The data indicate that both the heartwood and sapwood of Douglas fir are more difficult to reduce than either spruce or Western hemlock. Heartwood is considerably more difficult to pulp than sapwood. This increased resistance of the wood to pulping, however, is more than offset by the higher density of the wood, giving a higher yield of pulp per digester, and by the increased yield based on the weight of wood used. For example, Cook D-5 gave a screened yield of 56.7 per cent based on the weight of wood, and, even though the bleach consumption was high, the amount of screenings based on the unscreened pulp was only 0.37 per cent. This is an increase of over 8 per cent in weight yield as compared with the spruce cook, S-2, and an increase of 6 per cent over the yield of pulp from Western hemlock.

If a commercial digester were to be charged with the same volume of Douglas fir chips as is normally used when cooking spruce, the weight of Douglas fir chips required would amount to approximately 1.33 times the weight of spruce. If it is assumed that the yield of Douglas fir pulp is 2 per cent greater than that obtained from spruce, an amount which could be realized easily in commercial practice, it may be calculated that the weight of pulp obtained from the Douglas fir cook would amount to 1.39 times the weight of spruce pulp. If the spruce were cooked in 10 hours and the Douglas fir in 14 hours, the pulp production per day from Douglas fir would be 2 per cent greater than that from spruce, assuming 1.25 hours for blowing and filling the digester. Thus, in spite of the longer cooking time required for Douglas fir, a change from spruce under the conditions described would result in a 2 per cent increase in pulp production at no extra cost. The cost for the Douglas fir cook would probably be lower than that for the spruce cook, as less steam would be required to cook at the lower temperature employed in pulping Douglas fir. These savings, coupled with the considerably lower cost of wood for the Douglas fir operation, show a decided economic advantage for this species.

It is possible to cook Douglas fir sapwood to almost any desired bleach consumption without danger of precipitation. The low screenings content of those pulps which were burned indicated that this occurred at the end of the cook, after precipitation of the liquor had started. If burning had taken place in the earlier stages, it would have been manifested by a fairly high amount of screenings containing burned chips. This was not the case. In the study of the heartwood of this species, it was found that the major problem was to cook the pulp to the desired degree before precipitation of the liquor occurred. Schedule 1 was used, and precipitation was found to take place somewhere between 14.5 and 14.75 hours. The bleach consumption of Cook D-7, cooked 14.75

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• **"Because of the much longer fiber length of the Douglast fir pulps, it may be that difficulties in obtaining uniform formatiton would be encountered when these pulps were used as the complete fiber furnish for grades requiring good formation. However, it seems probable that Douglas fir pulp would impart valuable characteristics to sheets that are normally made of spruce or hemlock pulp if it were blended with the spruce or hemlock in the correct proportions. Higher bulk and tear than can be made from normal sulphite are often desired in many cases. Douglas fir pulp should improve these properties, even when added in moderate amount."**

● "The chemical analyses indicate that the bleached Douglas fir pulps, though showing slight degradation from the bleaching operation, possesses all the properties of spruce pulps after a mild alpha treatment. The viscosity is considerably higher than that for the spruce and Western hemlock pulps, and the increase in alpha-cellulose content over the other two species is again apparent. The pentosan content is somewhat lower than for the unbleached pulps, but not significantly so. The difference between the pentosan contents of the species are in the same order as was found for the unbleached pulps. The ether solubility of the bleached Douglas fir pulps is lower than that of spruce and Western hemlock, but there are no significant differences between the lignin and ash values. Copper numbers are somewhat high for bleached pulps, indicating that some slight degree of degradation occurred during the bleaching operation. Nevertheless, the analytical data are comparative, as the same procedure was used for all pulps."

hours, was 19 per cent, and that for Cook D-18 after 14.5 hours was 23 per cent. Apparently this is the limit to which heartwood may be pulped under these conditions.

● The difficulty in the pulping of Douglas fir heartwood is the precipitation of the cooking liquor and the resultant burning of the pulp. The cause of this phenomenon has not been definitely established, although several factors which influence its occurrence are known. Gishler and Maass[14] in their studies on the system calcium oxide-sulphur dioxide-water observed the precipitation of calcium monosulphite from the solutions at temperatures considerably below the normal sulphite cooking range. They found that precipitation temperatures were increased by a decrease in lime content or by an increase in sulphur dioxide concentration of the liquor. In the presence of sprucewood these temperatures were increased considerably, and, although the mechanism by which this increase was obtained was not determined, the suggestion was advanced that the colloidal conditions of the wood had a deterrent action on the precipitation.

It may be possible, since calcium monosulphite was observed in the precipitate found in the liquor from Cook D-6, that the precipitation temperature of the liquor was exceeded in those cooks which exhibited burning. If this is true, then the Douglas fir wood does not elevate the precipitation temperature to the same extent as does spruce. Also, the heartwood of Douglas fir does not have the same elevating tendency as the sapwood.

Based on the assumption that this property of sulphite acid is the cause of the precipitate, two remedies are suggested. First, the maximum temperature of the cook may be reduced. It was observed that the reduction of the maximum temperature from 140° C. to 134° C. resulted in precipitation much later in the cook. With the same maximum pressure, a reduction in temperature also results in an increase in sulphur dioxide concentration in the liquor, a factor which should be helpful in eliminating the difficulty. There is a limit to this reduction in temperature, however, in that a sufficiently high temperature must be used to complete the cook in a reasonable length of time.

The second remedy involves increasing the concentration of sulphur dioxide in the liquor by increasing the digester pressure. Such a remedy was not tried in the present work, but it is an interesting possibility.

● Another factor which may have considerable effect on the tendency of the liquor to precipitate is the relative rate at which calcium oxide and sulphur dioxide are consumed by the wood. If the sulphur dioxide is removed from the liquor by reaction with the lignin of the wood and by digester relief, at a much greater rate than lime is consumed, the precipitation temperature will be lowered. This may well be the case.

It has been demonstrated that small amounts of impurities in the cooking acid affect the promotion of auto-oxidation and reduction of calcium bisulphite to calcium sulphate and free sulphur. Selenium, for example, is very troublesome in this respect; other compounds having similar tendencies are the members of the pinene series. Since the oleoresin of Douglas fir contains limonene, as well as other members of the pinene series, these constituents may be a contributing factor, if not the only cause, of the precipitation. If this is true, there is no possibility of completely eliminating precipitation by the adjustment of cooking variables alone. Also, a larger amount of these resins would be found in the heartwood than in the sapwood.

Since both calcium sulphite and calcium sulphate were found in the precipitate, it seems reasonable to conclude that precipitation in the

TABLE III

Summary of Cooking Data

Cook No.	Wood	Temperature Schedule No.	Maximum Temperature °C.	Total Time Hrs	Liquor Ratio	Yield			KMnO₄ No.	Bleach Consistency Pct.
						Total Pct.	Screened Pct.	Screenings Pct.		
D-3	Sapwood	1	134	12.25	7.33	52.3	51.9	0.78	16.1	21
D-4	Sapwood	1	134	13.75	7.33	46.0	45.9	0.31	11.2	13
D-5	Heartwood	1	134	13.75	6.95	56.9	56.7	0.37	27.2	37
D-7	Heartwood	1	134	14.75	6.94	51.2	51.1	0.18	15.2	19
D-9	Sapwood	2	145	10.00	7.17	50.0	49.7	0.66	12.4	17
D-19	Slab Wood	2	140	10.00	7.23	51.9	49.3	4.87	15.5	22
D-20	Whole Tree	1	134	14.25	7.00	49.1	49.0	0.14	11.3	13
S-2	Spruce	+	140	10.00	4.64	48.4	48.0	0.83	11.1	11
WH-1	W. Hemlock	2	140	9.75	6.33	50.5	50.3	0.41	11.4	15

*Temperature and pressure schedules differed from those used in other cooks.

case of Douglas fir heartwood is caused by a combination of two reactions: first, the precipitation of calcium sulphite caused by exceeding the precipitation temperature of the liquor; and second, the precipitation of calcium sulphate and free sulphur caused by the presence of compounds of the pinene series. As has been demonstrated by Cooks D-5, D-7 and D-20, this precipitation can be avoided by the careful choice of cooking conditions. By use of conditions reported for these cooks, pulps of a reasonable bleachability may be obtained before the precipitation point is reached.

It is true that most of the Douglas fir cooks had comparatively high bleachabilities, but this fact is more than offset by the increased yields obtained from this sepcies.

Bleaching Data

A number of the experimental pulps were bleached according to the procedure described earlier. These bleaching data are presented in Table IV. For all the Douglas fir pulps the amount of bleach actually required was less than the amount indicated by the bleach consumption determination. The spruce and Western hemlock pulps required more, however, so that the spread between the amounts actually used in bleaching was considerably less than that indicated by the single stage bleach determination. As would be expected, the amounts of caustic soda and lime required vary with the amount of bleach used; those required for the raw pulps were higher. The amounts are not excessive, however, and, in several cases, Douglas fir pulps required less than the spruce and Western hemlock pulps. A simple two-stage procedure was used and no difficulty was encountered in bleaching these Douglas fir pulps to brightness as high as 80 per cent.

Physical Properties of Pulps

● The physical properties of the unbleached and bleached pulps are given in Table V. These data are compared at a freeness of 600 cc. Schopper-Riegler. Since the primary object of this work was to produce satisfactory pulps from Douglas fir sapwood, heartwood, slabwood, and the entire tree, only those cooks which fulfilled these objectives were completely evaluated. These were Cooks D-3, D-7, D-19 and D-20. The others, though useful in

TABLE IV
Experimental Bleaching Data

Cook No.	$KMnO_4$ No.	Consistency Bleach	First Stage Cl_2 Pct.	First Stage NaOH Pct.	Second Stage Bleach Pct.	Second Stage CaO Pct.	Total Bleach	Brightness Pct.
D-3	16.1	21	1.35	0.36	10	2.2	13.9	79.5
D-4	11.2	13	1.60	0.23	6	1.3	10.6	81.8
D-5	27.2	37	4.54	0.63	20	3.0	33.0	79.5
D-6	8.0	6	0.74	0.18	6	1.3	8.1	79.9
D-7	15.2	19	2.33	0.36	9	1.5	15.7	82.3
D-9	12.4	17	2.08	0.29	9	1.8	14.9	79.3
D-19	15.5	22	2.70	0.40	12	2.9	19.7	79.3
D-20	11.3	13	1.59	0.25	7	1.5	11.5	80.3
S-2	11.1	11	1.35	0.36	10	2.2	13.9	79.5
WH-1	11.4	15	1.84	0.29	10	2.1	15.3	79.8

TABLE V
Physical Properties of Experimental Pulps

Unbleached Pulps

Cook No.	Wood	Physical Properties at 600 Freeness: Burst Ratio Pct.	Tear Factor Pct.	M.I.T. Fold No.	Apparent Density	Time to 600 Freeness Min.
D-3	Sapwood	112	184	1483	12.7	90
D-4	Sapwood	110	195	1550	14.2	94
D-5	Heartwood	95	135	560	13.4	61
D-7	Heartwood	103	177	1080	13.8	76
D-9	Sapwood	113	201	1330	14.0	92
D-19	Slabwood	109	193	1360	14.1	104
D-20	Whole Tree	100	165	620	13.6	85
S-2	Spruce	142	115	1040	15.1	74
WH-1	Western Hemlock	147	133	2740	15.7	84

Bleached Pulps

Cook No.	Wood	Physical Properties at 600 Freeness: Burst Ratio Pct.	Tear Factor Pct.	M.I.T. Fold No.	Apparent Density	Opacity Pct.	Time to 600 Freeness Min.
D-3	Sapwood	100	155	900	13.7	44.6	104
D-4	Sapwood	92	190	560	13.3	50.3	106
D-5	Heartwood	96	108	390	13.9	41.5	75
D-7	Heartwood	84	150	340	13.7	45.0	93
D-9	Sapwood	93	218	720	13.1	49.3	110
D-19	Slabwood	98	180	735	13.4	46.6	114
D-20	Whole Tree	86	161	430	13.6	48.4	103
S-2	Spruce	141	122	1900	15.9	55.4	78
WH-1	Western Hemlock	125	136	1275	14.3	45.8	99

● "Because of their high alpha-cellulose content, the use of the bleached Douglas fir pulps for the manufacture of cellulose derivatives is suggested. No data are available on this point, but the chemical analyses of the pulps indicate that any purification treatment need not be as extensive as with other pulps. This particular application of Douglas fir pulps is certainly worth further investigation."

determining the range of variables which produce satisfactory pulps, were not subjected to a chemical analysis.

A study of Table V shows fairly normal behavior with respect to cooking conditions for these pulps. For instance, Cook D-5, a very raw pulp, did not develop as high a burst as those pulps cooked to lower bleach consumptions. This tendency is also observed when cooking sprucewood. Similarly, Cook D-6, which was quite badly burned, showed considerably lower physical properties than the others.

Douglas fir pulps develop their physical properties more slowly than do spruce and Western hemlock. This observation holds for both the unbleached and bleached pulps. The burst ratios were found to range from 80 to 113 per cent at 600 cc. freeness, but in no case was a distinct maximum observed in the curve of burst ratio against milling time. Presumably, longer milling would result in increased burst ratios, but at freenesses below 400 cc.

Folding endurance data show these same trends. In general, Douglas fir pulps develop higher folding strengths than spruce at the higher freenesses, but they do not show as sharp a rise at the lower freeness values.

All Douglas fir pulps exhibited higher tearing strengths than either the spruce or Western hemlock pulps. The curves of tear factor against milling time show that the tear factor for Douglas fir pulps decreases much more slowly with increased milling time than either of the comparison pulps. This high initial tear and slow loss on milling are probably due in a large measure to the long fibers of this species.

A low apparent density is a typical property of Douglas fir pulps. The pulps would therefore be useful in producing bulk in a sheet, a property which is very desirable in many grades of paper.

● Because of their poor color, unbleached Douglas fir pulps would probably find application only in those grades of paper where color is not important or in heavily dyed shades. Their physical properties indicate their use in such grades as wrapping and cover papers.

When the physical data for the bleached pulps are considered, it is apparent that there was a small amount of degradation during bleaching. Burst and fold bleached pulps show a decrease over the values for the unbleached pulps, whereas the tear is somewhat higher. In general, the capacity of the Douglas fir pulps is lower than that of spruce, but higher than that of Western hemlock.

Bleaching tends to make the rate of hydration of all the pulps somewhat slower but in the same order as was observed for the unbleached pulps.

From a papermaking standpoint, bleached Douglas fir pulps would be desirable blending pulps for almost any grade of paper. When used as the sole component of the furnish, the extremely long fibers of Douglas fir pulps may cause some difficulty on commercial paper machines from the standpoint of formation. The tendency of long fibers to flocculate into knots or bundles, giving rise to wild sheet formation, is known. It may be found necessary to use extreme jordan action in order to decrease the fiber length sufficiently for good sheet formation.

On the other hand, if used as a blending pulp, bleached Douglas fir sulphite would impart desirable properties to many grades of paper. Of primary interest in this respect are the high tear and low apparent density of these pulps. The use of Douglas fir pulps in such grades as mimeo, bond, cover, ledger, printing, folding raw stock, and wrapping would probably result in a cheapened furnish possessing improved physical properties.

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TABLE VI

Chemical Analyses of Experimental Pulps

Unbleached Pulps

Pulp No.	Wood	Alcohol-Benzine Solubility Pct.	Ether Solubility Pct.	Lignin Pct.	Pentosans Pct.	Alpha Cellulose Pct.	Cuprammonium Viscosity cp.	Ash Pct.
D-3	Sapwood	0.73	0.58	0.88	3.63	88.4	57.8	0.48
D-7	Heartwood	0.84	0.62	0.75	3.14	88.6	64.1	0.56
D-19	Slabwood	0.78	0.64	0.98	3.80	89.9	69.8	0.53
D-20	Whole Tree	0.81	0.58	0.58	1.34	90.0	58.3	0.41
S-2	Spruce	1.24	0.86	0.41	6.17	82.5	57.6	0.47
WH-1	Western Hemlock	0.95	0.80	0.64	4.75	84.1	61.7	0.43

Bleached Pulps

Pulp No.	Wood	Ether Solubility Pct.	Lignin Pct.	Pentosans Pct.	Alpha Cellulose Pct.	Cuprammonium Viscosity cp.	Copper No.	Ash Pct.
D-3	Sapwood	0.53	0.04	3.50	86.4	38.6	1.61	0.46
D-7	Heartwood	0.59	0.05	2.97	87.2	36.9	1.23	0.40
D-19	Slabwood	0.60	0.06	3.61	86.6	40.7	0.80	0.51
D-20	Whole Tree	0.55	0.03	1.28	87.4	34.7	1.41	0.48
S-2	Spruce	0.83	0.04	5.88	82.4	24.7	1.13	0.43
WH-1	Western Hemlock	0.75	0.05	4.63	82.8	28.8	1.29	0.47

Chemical Properties of Pulps

● As mentioned previously, chemical analyses were made only on selected pulps. The data obtained are presented in Table VI. Perhaps the two most striking features of the analyses of the unbleached Douglas fir pulps are the high content of alpha-cellulose and the low pentosan content. Values for alpha-cellulose (corrected for lignin) range from 88 to 90 per cent, 6 to 8 per cent higher than those for spruce and Western hemlock. Pentosan contents as low as 1.4 per cent were observed, and the maximum found was 3.8 per cent. Both spruce and Western hemlock had pentosan contents considerably in excess of these values.

Although many investigators have described Douglas fir as a resinous wood, analysis of the wood shows this idea to be erroneous. The alcohol-benzene solubility of both the heartwood and sapwood of this species is lower than that found for spruce or Western hemlock, and this fact is also observed in the analysis of the unbleached pulps. The ether solubility of unbleached Douglas fir pulps is also lower than that of spruce or Western hemlock, indicating that unbleached Douglas fir pulps would cause little or no pitch trouble on the paper machines.

The lignin content of these pulps is about that expected from the bleach consumptions, although the correlation between bleachability and lignin content is only a general one.

The chemical analyses indicate that the bleached Douglas fir pulps, though showing slight degradation from the bleaching operation, possess all the properties of spruce pulps after a mild alpha treatment. The viscosity is considerably higher than that for the spruce and Western hemlock pulps, and the increase in alpha-cellulose content over the other two species is again apparent. The pentosan content is somewhat lower than for the unbleached pulps, but not significantly so. The differences between the pentosan contents of the species are in the same order as was found for the unbleached pulps. The ether solubility of the bleached Douglas fir pulps is lower than that of spruce and Western hemlock, but there are no significant differences between the lignin and ash values. Copper numbers are somewhat high for bleached pulps, indicating that some slight degree of degradation occurred during the bleaching operation. Nevertheless, the analytical data are comparative, as the same procedure was used for all pulps.

Because of their high alpha-cellulose content, the use of the bleached Douglas fir pulps for the manufacture of cellulose derivatives is suggested. No data are available on this point, but the chemical analyses of the pulps indicate that any purification treatment need not be as extensive as with other pulps. This particular application of Douglas fir pulps is certainly worth further investigation.

General Summary

● Pulps satisfactory with respect to yield and quality were obtained from Douglas fir heartwood, sapwood, slabwood, and the entire tree by the usual sulphite process. It was not found necessary to use any chemical pretreatment or special base in the cooking liquor to accomplish this, contrary to the findings of other investigators as reported in the literature.

The principal points of difference between the cooking condition used by these workers and those used in this investigation are: first, a higher concentration of free sulphur dioxide was used in these cooks, and second, all experimental pulping in

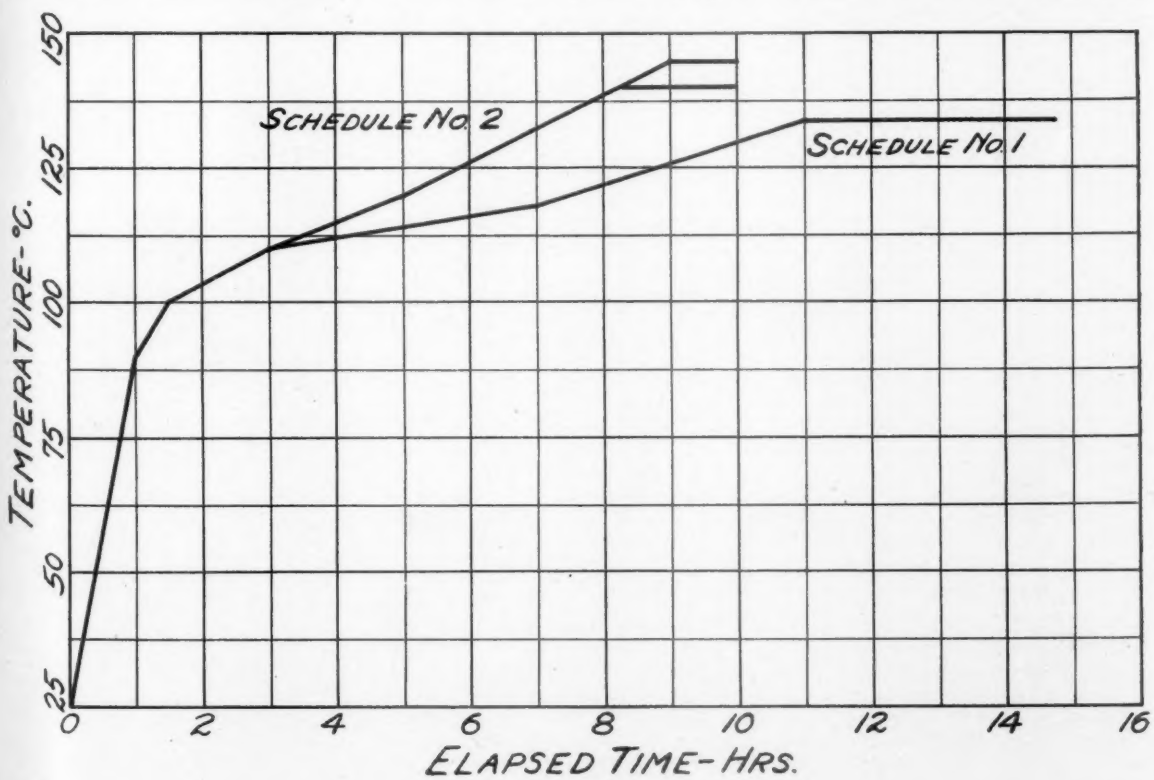


FIGURE I

Temperature Schedules for Experimental Douglas Fir Cooks

this work was carried out at temperatures ranging from 134° to 140° C., values considerably lower than those reported in the literature. As some difficulty was encountered in pulping the heartwood of this species at 140° C. (because of the precipitation of the cooking liquor and the resultant burning of the pulp), these variations in cooking conditions may well account for the success of this work and the poor results obtained by others.

The cooking conditions used in pulping Douglas fir were such as to give a high concentration of sulphur dioxide in the liquor until well into the cook. This was accomplished by using a very slow temperature rise from 110° C. up to maximum temperature and a high initial pressure (85 pounds per square inch), thus favoring complete and rapid penetration of the chips and allowing a fairly long period at comparatively low temperatures for sulphonation of the lignin. The success of these measures may be judged by the very low screenings obtained. While cooking under these conditions requires a longer total cooking time, the higher wood density of Douglas fir and the somewhat higher pulp yields more than compensate for this extra cooking period, thus making it possible to obtain a slightly increased yield of pulp per day when using this species.

The larger quantity of ether-soluble resin in Douglas fir heartwood does provide evidence that precipitation of the cooking liquor encountered when pulping this wood may be caused by the action of compounds of the pinene series in promoting auto-oxidation and reduction of the liquor to calcium sulphate and free sulphur. As has been discussed in some detail previously, it is entirely possible that Douglas fir heartwood does not elevate the precipitation temperature of sulphite liquor to the same extent as does spruce, thus providing another explanation for this phenomenon. However, using the proper cooking condition, precipitation in the liquor may be avoided.

The bleached and unbleached Douglas fir pulps upon beating gave development curves for physical properties which were similar to normal bleached sulphite pulps. While these development curves might be considered in the normal range of sulphite pulps, they did show a ditsinctly slower rate of development than the spruce and Western hemlock pulps prepared in this study. In comparison with the spruce and Western hemlock pulps, the Douglas fir pulps, in general, were low in bursting and folding strengths and very much higher in tearing strengths. Another outstanding difference is noted in the low apparent density; i.e., high bulk of the Douglas fir pulp.

Because of the much longer fiber length of the Douglas fir pulps, it may be that difficulties in obtaining uniform formation would be encountered when these pulps were used as the complete fiber furnish for grades requiring good formation. However, it seems probable that Douglas fir pulp would impart valuable characteristics to sheets that are normally made of spruce or hemlock pulp if it were blended with the spruce or hemlock in the correct proportions. Higher bulk and tear than can be made from normal sulphite are often desired in many cases. Douglas fir pulp should improve these properties, even when added in moderate amounts.

Unbleached pulps from Douglas fir were found to have considerably higher alpha-cellulose and lower pentosan contents than pulp from spruce or Western hemlock. The low ether solubilities of the Douglas fir pulps indicate that very little or no pitch trouble would be occasioned by their use on the apper machine.

It was found that Douglas fir pulps from the sapwood, as well as those prepared from mixtures of the two, could be bleached to a relatively high brightness by a two-stage bleaching operation. While the method of bleaching employed caused some degradation of the pulp, the results are truly comparative, for both spruce and Western hemlock pulps were also bleached by this method.

The bleached pulps had physical properties similar in all respects to those of the unbleached pulps. Their application to papermaking has already been discussed.

The chemical analyses of the bleached Douglas fir pulps show decidedly higher alpha-cellulose and lower pentosan contents than were observed for spruce and Western hemlock. This suggests their application in the manufacture of cellulose derivatives, and, while no data were taken in this respect, an investigation in this direction should prove worth while.

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Waldhof Expands In German Industry

● An important development in the German paper industry took place through the purchase of the stock of the Natronzellstoff-und-Papierfabriken A. G. (better known as Natronag), by the large Zellstoff-Fabrik Waldhof concern. The control of Natronag was hitherto held by the Hartmann family, which at one time practically dominated the German paper industry. By this transaction the former influence of the Hartmann concern was practically eliminated. This process of withdrawal from the paper industry commenced some time ago when the Hartmann interests in the Dresdner Chromo-und-Kunstdruck Papierfabrik Krause & Baumann A. G. were merged in 1937 with the Feldmuehle Papier-und-Zellstoffwerke A. G. Kostheim Cellulose und Papierfabrik A. G., in Mainz-Kostheim, was acquired already last year by the Waldhof concern.

By acquiring a dominating interest in Natronag, the Waldhof Company, in addition to its strong position in the sulphite chemical pulp branch of the industry, now also occupies a predominant position in the manufacture of soda pulp. Of the entire German wood pulp production estimated for 1937 at around 1,500,000 metric tons, almost 500,000 were produced by the Waldhof company and its affiliation, Kostheim Cellulose und Papierfabrik A. G. Zellstoff Waldhof and Natronag have now concluded a working arrangement under which all questions of purchase and technique connected with sulphate cellulose production are handled in common so as to ensure the best possible economic basis in the supply and utilization of raw materials and in the distribution of output. (American Consulate General, Frankfort-on-Main).



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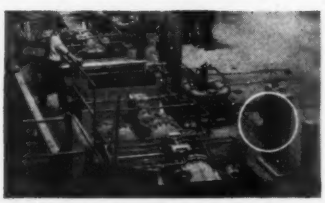


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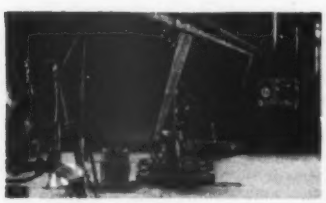
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* * *



TAYLOR AUTOMATIC CONTROL system for sulphite digester application is entirely automatic over 90% of the cooking cycle. It maintains the essential low temperature during the penetration period; increases it at the prescribed rate for any character of stock desired; and maintains it at the maximum temperature during the remainder of the cook. The result? A maximum production of No. 1 stock with reduced "tailing" losses. Greater uniformity in strength and bleaching characteristics. Fewer losses due to poorly blown digesters. The Taylor Digester Control System will bring you the highest possible quality—*at a lower conversion cost per ton.*

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TEMPERATURE, PRESSURE, FLOW *and* LEVEL INSTRUMENTS

Grinding Paper Mill Rolls

by E. T. LARSON*

SOME idea of the multitude of rolls in the modern Fourdrinier and Cylinder paper machines and the magnitude of the grinding operations involved may be gained from the following example:

At one end of the machine wood pulp flows onto a wire where the fibers flatten out and mat to form the web of paper, and at the other end finished paper is slit and wound up into rolls. Between these two points the web of paper traverses hundreds of feet at speeds from 50 to 1500 feet per minute, conveyed and processed by rolls of various types.

Among the chief rolls in a paper machine that require regrinding from time to time are the press rolls, each unit of which comprises an upper and lower roll. The lower is either a rubber covered plain roll, or a rubber covered suction roll; the upper roll in each unit is either gun metal covered, granite, "Stonite" or rubber covered. From the press rolls the web of paper travels to the dryer section, consisting of two tiers of steamheated rotating cylinders, and then through a stack of chilled iron calender rolls where the paper is ironed smooth and given the final surface.

All of these rolls, with the exception of the dryers which rarely need refinishing and are too large for most mills to handle, must be reground periodically to correct surface inaccuracies that develop after prolonged use.

Surface and Finish Requirements

● Paper-mill rolls, as a rule, do not require the perfection of surface and and finish demanded in the metal rolling fields. However, the surface must be free from chatter marks and feed lines and the body must be ground to very close limits for roundness and parallelism, or with the correct amount of crown.

It is particularly important that chatter marks be eliminated from the calender rolls, as any such imperfections that may be left in one roll will mark the adjacent rolls, and in a short time all of the rolls in the stack will show similar marks with consequent imperfections transferred to the paper.

Ripples, which sometimes develop on wide stacks of calender rolls running at high speed due to their whipping action, must be entirely removed when regrinding the rolls, even though it may be necessary to remove a considerable amount of stock, by means of a coarse grit roughing wheel prior to finish grinding.

Some mills have a complete set of spare calender rolls so that when it becomes necessary to regrind the rolls in a stack, all except the bottom rolls are removed and replaced with reground rolls. The danger attendant to removing only the two or three rolls that are most in need of reconditioning lies in the fact that the other rolls in the stack are also ususally marked, although perhaps to a lesser degree, and when the newly ground rolls are placed back in the stack, they will immediately be subjected to marking by the other rolls.

● Rolls used in water-finish calender stacks give more or less trouble due to pitting or corrosion. In regrinding a pitted roll, the operator should make certain to get below the pits, for if this is not done, the rust remaining in them will continue to corrode the roll surface and it will be only a short time before the roll will have to be ground again.

In the case of rubber covered press rolls, if cracks or checks should develop in the surface, these must be ground out entirely, for if even the minutest trace of a crack is allowed to remain, it will start a new crack and spread throughout the entire cover with the result that in a short time the roll will have to be reground.

Importance of Correct Crown Shape

● Most of the various types of paper mill rolls previously enumerated are comparatively small in diameter for their length, and as a result they have a tendency to sag through their own weight. To offset this deflection, it is necessary to crown some of the rolls a slight amount.

Crown is of special importance on the bottom roll of calender stacks. In fact, the successful operation of the stack depends primarily upon the correct crown of the bottom roll, which carries the weight of the entire stack, as well as the pressure often applied to the journals on the top roll. The crown should be of such a shape as to produce, when the roll is carrying the super-imposed load upon its journals, a uniform pressure throughout the contact between the roll and the one next above it. The roll manufacturer should be consulted in regard to the proper amount of crown for the rolls in a given stack.

Occasionally the roll next to the bottom one is also crowned, but it is not necessary to crown the intermediate rolls as these are supported by the rolls beneath.

When the stack is assembled, the rolls must fit so accurately one over the other that when a light is passed along the juncture or nip of the rolls on one side, no light can be observed showing through on the other side. If the rolls are not light tight, they should be taken out of the stack and reground.

Rubber press rolls must also be ground with a curved (not tapered) crown. This must be accurately determined and will depend upon such principal factors as the dimensions and density of the rubber covering, the shell body construction, and the grade of paper manufactured. While tables are available that will serve as a guide to the relative amount of crown for various diameters and lengths, it is advisable to consult the rubber roll supplier in regard to the exact crown for a particular roll.

Wheels for Grinding Paper-Mill Rolls

● Paper-mill rolls may be grouped, according to their material, under the headings of chilled iron, rubber covered, "Stonite," granite, brass and copper. Most mills consider it impractical to change grinding wheels for each type of roll, as the time consumed in wheel changes would offset any increase

*Norton Company, Sales Engineering Department. Reproduced from Grits and Grinds, Volume 29, No. 4, August, 1938, published by the Norton Company, Worcester, Mass.



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in production. Therefore, they select a single, general purpose wheel that will satisfactorily grind all of their rolls.

Approximately one-half of these rolls are made of chilled iron. Rubber covered rolls are next in importance. Since the "Stonite," granite, brass and copper rolls are comparatively few in number and can be ground quite satisfactorily with the same wheels that are suitable for chilled iron and rubber rolls, they do not have to be considered in the selection of a general purpose wheel.

The problem, essentially, is to select a wheel of such a grit size that it will grind chilled iron rolls to a satisfactory finish and yet be sufficently coarse to grind rubber covered rolls without excessive loading. The wheel must have sufficient hardness to hold its cut over the entire length of the roll and yet be free cutting enough so as not to cause chatter marks.

The majority of roll grinders used for reconditioning paper-mill rolls are of the two-wheel type. Shellac and resinoid bonded wheels are best suited for these machines. On the conventional types of roll grinders vitrified bonded wheels can be used successfully, although here also shellac and resinoid bonded wheels are generally preferred because of their finishing qualities.

● Number 60 may be considered a compromise grit size and one of the most popular specifications in a general purpose wheel is 760-L5L CRYSTOLON, shellac bonded. Many mills are finding that coarser grit wheels, such as 3746-L5L and 3746-M5L will meet their requirements for finish on chilled iron rolls with the advantage of faster stock removal on all rolls and less loading and over-heating when grinding rubber rolls.

In vitrified bonded wheels, an average specification would be 3736-K5 CRYSTOLON for roughing, particularly the non-ferrous rolls, and 3780-I8 for finishing.

When there is sufficient grinding of one kind of roll to warrant the time expenditure in changing wheels, it is desirable to employ a separate wheel especially selected for the material. For example, chilled iron rolls can be roughed out quickly by using a relatively coarse grit wheel, such as 3730-L5L CRYSTOLON shellac, before finishing with the 3760-L5L or 3770-L5L.

Rubber covered rolls are best ground with a coarse and soft wheel, such as 3724-K5L CRYSTOLON shellac. Where resinoid bonded wheels are preferred, 3724-K5T is recommended.

● Where an exceptionally smooth surface on rubber rolls is desired, separate wheels are used for roughing and finishing. In this case, the roll should be rough ground to within 1/64" or 1/32" of the finished size so that the final cut with a finishing wheel, ususally 3760-K5L CRYSTOLON shellac or 3760-K5T CRYSTOLON resinoid, will be very light, or just sufficient to remove any feed lines or surface roughness left by the coarse grit roughing wheel.

"Stonite" rolls may be considered in the same class as rubber-covered rolls as far as grinding wheel selection is concerned.

For grinding hard rubber rolls, 3730-L5L CRYSTOLON shellac is recommended. This same specification is also suitable for granite, brass and copper rolls.

Tips on Grinding Chilled Iron Rolls

● Take light cuts. A light cut does not wear the wheel as rapidly and the diameter of the roll is apt to be more uniform throughout its length. Experienced operators are able to determine the approximate depth of cut by listening to the cutting sound of the wheel. The proper work speed depends mostly on the proportions of the roll and the finish requirements. It appears to be common practice to run chilled iron rolls up to 20" in diameter at about 85 surface feet per minute and rolls larger than 20" at about 110 s.f.p.m. Long, slim rolls have a tendency to whip and set up vibration which can be offset by reducing their speed.

Clean, carefully filtered coolant, directed between the wheel and the work in a generous flow, is essential for a surface that is to be perfectly round and free from scratches and other imperfections. On the two-wheel type of roll grinder, care must be taken to have the coolant fed over the grinding wheel that is running down. In this position, the water is carried by the roll to the other wheel. Strong alkali coolants should be avoided as these have a tendency to attack the shellac bond, resulting in rapid wheel wear and scratches on the roll surface.

Operators who are troubled with chatter marks should make sure that the wheel spindles on their machines are not loose, the driving dogs are not too tight (or too loose), the grinding solution of the correct strength, and the grinding wheels not too hard. In grinding long, slender chilled iron rolls, it is sometimes necesary to raise the roll above centers in order to eliminate chatter marks. Due to its own weight, the center of the roll sags below the center line of the wheels and by shimming up the bottom gib (on two-wheel grinders) and raising the center line of the roll 1/8" to 1/4" above the center line of the wheels, the grinding action is improved perceptibly.

It is desirable to use a special roll caliper to check the roll for roundness and straightness (or amount of crown). The indicator needle should not deflect if the roll is perectly round. To prevent the caliper from chattering, the roll should be wiped with the grinding solution or oil.

Tips on Grinding Rubber Covered Rolls

● It is considered good practice to grind rubber covered press rolls at regular and frequent intervals. By adopting this procedure, only a very small amount of the rubber cover will have to be gound off each time in order to restore an even and properly crowned surface. Furthermore, the roll is always performing at high efficiency. When the rolls are ground infrequently, it is necessary to grind much more deeply in order to recondition them, with resultant greater waste and reduced roll life.

● Rubber covered rolls are generally ground dry and if the grinding wheels are of the correct grain and grade specifications and are properly manipulated, there should be little trouble from their loading. To promote a cool cutting action and reduce loading to a minimum, the wheels should be of a fairly coarse grit size, such as the 24 and 30 grit wheels recommended above. When finer grit wheels are used, they should be given a coarse dressing and then redressed periodically. The redressing can be accomplished by means of the conventional diamond dressing tool or a mechanical wheel dresser, a stiff wire brush, or by alternating the grinding of rubber covered rolls with chilled iron or brass rolls.

Wheel loading can also be controlled by using means to reduce the heat generated in grinding, such as

(Concluded on page 41)



Photograph by U. S. Forest Service

New Forests — New Jobs

Forest management cooperating with nature is producing new crops of rapidly growing timber in the Pacific Northwest ' ' ' New timber crops mean new jobs ' ' ' These pictures taken from an identical spot in the Columbia National Forest at an interval of ten years, show the rapidity with which new forests replace the old when protected from fire ' ' ' The top picture was taken in 1935 at the time 2 year old Douglas firs were planted by the Pacific Northwest Forest Experiment Station.



Freedom and Unity—

Their Application to the Problems of Forest Management

by RODERIC OLZENDAM,*
Weyerhaeuser Timber Company

ONE hundred and sixty years ago the Continental Congress was trying desperately to weld into a Union a group of States which had just emerged from a war in which they had shaken off the yoke of European domination. There was no question but what the people were determined to form a Union of the States, yet each State was feeling the strength of its recently gained freedom and had no intention of joining any alliance with other States at the expense of its own independence. Some of the States thoroughly disliked the way things were going and recalled their delegates. Other delegates left the Congress in an angry mood.

States' Rights! State boundaries! Equal representation! These were some of the many perplexing problems that were throwing everything into confusion. Ethan Allen, from the Green Mountain state of Vermont, told the representative of George the Third, who tried to tell him what the Vermonters could and could not do, that "The gods of the hills are not the gods of the valleys and if you don't believe us, come up to Bennington and we'll show ye. Rather than to give in, we will withdraw into the caverns of the mountains and fight human nature at large."

At the height of this confusion Ira Allen, brother of Ethan Allen, was commissioned by the Legislature of Vermont to design a seal for the State. On the seal which he designed and which was approved, he incorporated two significant symbols. In the center of the seal he engraved a mature tree, beneath which was a dense stand of seedlings. On a scroll beneath the name "Vermont" he inscribed the words: "Freedom and Unity."

I am almost tempted to ask you gentlemen to rise and drink a toast to Ira Allen, the Vermonter who 160 years ago realized that if Vermonters were to have timber tomorrow, they must plan for it today—that if they were to have Freedom, it must come through Unity.

I suggest as a philosophy of action for each individual, each private forest enterprise, for each State and Federal forestry agency during the decade beginning in 1938, those three thought-provoking words that Ira Allen incribed on the Seal of Vermont in 1778—"Freedom and Unity"—Freedom that will stimulate individual initiative and resourcefulness; that will breed tolerance of individual thought—Unity that will weld together all the forces of forestry in a common objective.

More than two thousand years ago Hippocrates said:

"There is no authority except facts.

"Facts are obtained by accurate observation.

"Deductions are to be made only from facts."

And the fact remains that today we do not have enough facts about the forests of America.

Need More Forest Facts

In the Weyerhaeuser Timber Company we know that we do not have enough facts about the forests entrusted to our management. For years the State and Federal Forest Services have been seeking and accumulating facts. Our company has drawn extensively on this storehouse of information. These data, together with the data built up by our own foresters and engineers, will be the foundation on which we shall build our intensive fact-finding during the next ten years. We realize that before we can bring the forests for which we are responsible into the highest state of usefulness, before we can convert the raw material into the best products with the least waste, before we can bring our systems of harvesting mature timber crops, our methods of slash disposal and reforestation to the state of effectiveness we are aiming at—**we must have more facts.**

If the general manager of the Weyerhaeuser Timber Company were tomorrow to issue rules and regulations governing the logging and forestry practices of each unit of the company, based upon the facts we have today, he would be open to criticism for being unscientific. Therefore, the men and the management of our company have set out on a decade of intensive forestry fact-finding. We have established seven Fact-Finding Areas—seven carefully selected points at which we are carrying on intensive experiments with but one subject in mind—to seek facts.

Fact-Finding Area No. 1

In Fact-Finding Area No. 1 we have an experimental forest of some 1500 acres of old growth timber. On this area we are carrying on experiments clearly aligned with our milling operations, in an effort to determine the kind of forest management which will best fit this type of timber.

Fact-Finding Area No. 2

Fact-Finding Area No. 2 is composed of about 1500 acres of second growth timber. Here we are studying the results of varying degrees of tree selection, together with better utilization, both in the woods and in the mills.

Fact-Finding Area No. 3

In Fact-Finding Area No. 3, 10,000 acres of second growth timber have been set apart. Here we will carry on, on a larger scale, the experiments developed on Area No. 2. Approximately one-half of this Area has been deliberately purchased during recent years in the anticipation that none of it will be harvested possibly during the present generation, but it will stand as a bridge in developing the company sustained yield operations.

Fact-Finding Area No. 4

In Fact-Finding Area No. 4 we have another experimental area of some 270,000 acres, nearly 40 per cent of which is in private ownership, the remainder being largely State and Federal land. This forest has furnished raw material for a lumber operation which has provided continuous employment for a large number of men for the past 40 years. Here we find a modern town of some 2,000 population, a town which has been putting its healthy roots down for 40 years, a town which stands in the center of a fine agricultural and recreational area, a town in which 69 per cent of the homes are owned by the workers who live in them. As a result of our intensive study here, we hope to find the best way of insuring an economically sound, permanent industrial forest enterprise with all its attendant benefits to society.

Fact-Finding Area No. 5

In conjunction with one of our milling and logging operations we have established an experimental forest nursery. Here we are experimenting to determine the best possible practices with a view to supplementing natural regeneration with artificial regeneration where necessary.

Fact-Finding Area No. 6

For the past three years we have made an intensive analysis of our timber holdings in a pine operation, to determine the method of timber harvesting that will yield the highest economic returns, and yet leave the forest in the best possible condition for future crops—crops that will insure the stability of the communities within the forest.

*Presented at the Nineteenth Annual Meeting of the Association of State Foresters, Boise, Idaho, August 28th, 1938.

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THE RESULT of natural reseeding . . . This splendid new forest is typical of forest regeneration in the Pacific Northwest.

Fact-Finding Area No. 7

Simultaneously with the establishment of our pulp mills, we created an experimental laboratory in which we are constantly at work on a number of experiments directed toward better utilization of the products of the forests.

Fact-Finding Area No. 8

In addition to these seven areas in which we are searching intensively for facts, we are experimenting every day in our logging operations with new ideas and new practices that we hope will lead to permanence of the forests; that will, we hope, insure a perpetual supply of raw material for our mills and that will lead to stability of employment. We are leaving areas of seed trees of various types and ages and in varying locations with respect to topography and prevailing winds. We are studying seed production and dissemination, and we are experimenting with various methods of fire protection in and around these areas. With maps and charts, we are keeping detailed records of the results obtained so that we can constantly improve our practices.

Our loggers and engineers are foresters, and our foresters are loggers. Sharing each other's viewpoints, they cooperate closely in planning for the reforestation of an area **before** the mature timber is removed. In addition to seed areas, they are leaving strips of timber and delaying the cutting of large settings until the surrounding cut-over area has become seeded. They are practicing varying degrees of tree selection as well as area selection, where such methods are obviously suited to the timber and logging conditions. The harvesting of forest crops is rapidly becoming an integral part of a broad forest management policy. Where we have sufficient facts to make intelligent improvements in our methods, we are making such changes. Where we lack sufficient facts, we are setting out to get them.

We do not intend to use any of these Fact-Finding Areas to defend our theories and practices, or to defend or criticize the theories and practices of anyone else, but we shall seek facts in an effort to evolve systems of forest management which will meet the silvi-cultural, economic and social requirements of the location; systems that will be based on **facts.**

Forest Management

The men and the management of our company are vitally interested in forest management. Every work day they are actually doing specific things that lead to greater permanence of the forests, and, therefore, of the economic and social stability of the people dependent on these forests—today and tomorrow. They are doing these things because they really **want** to do them, because they think they **should** be done, because they think it is **good business** for the men and good business for the company as a whole. The things which they are doing will put them in possession of facts which ten years from now will be worth much to the future of the company, and, therefore, to the adjacent communities. Upon these facts the employment of their sons and their grandsons will depend; that's the strongest and the most valuable urge that can be applied. It is the most compelling kind of compulsion I know of. The results obtained through natural compulsion are democratic results that will last.

We are undertaking this program of Fact-Finding in a spirit of "Freedom and Unity." The loggers and the forester of our company have Freedom to exercise their individual resourcefulness and ingenuity for improving forest-management practices and for seeking facts in the laboratory and in the experimental forests. Yet all of these men are working towards the same end—they have a common Unity of purpose—to earn a living by furnishing the American people with uninterrupted supplies of forest products.

As we talk about forest management in the United States in 1938, we find that our situation resembles that of the early Vermonters. We, too, have plenty of complications. The forest lands of the United States occupy one-third of the total land surface of the nation. There are hundreds of types of trees, growing on every conceivable kind of soil and under a wide variation of climatic conditions. The ownership of these forests is as heterogeneous as the forest itself, composed as it is of individuals and groups of individuals, of State and Federal governments, with as many kinds of taxation as you can think of. We have many theories about what should be done. We have accumulated some facts. There seems to be general agreement, however, that we do not have anywhere near enough.

What To Do?

In recent times there has been much talk about "sustained yield," "selective cutting" and "clear cutting." We have discussed the pros and cons of "spot burning" and "broadcast burning;" of "artificial regenration" and "planting"; and of "marginal values" and "conversion factors." We hear a great deal about "seed areas," "strip logging," and "delayed settings." While we realize that such terms have a significance, and that they undoubtedly have a place in our forest management practice, most of us have only a vague understanding as to exectly where and how they can be applied in the woods. As far as the men who are working in the woods are concerned, these terms for the most part still remain in the realm of generalities. The tendency has been for foresters to forest, and for loggers to log, in rather watertight compartments. We have had



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practical experiments in the woods and in the mills, guided largely by individual expediency, and many experiments have been carried on in laboratories often sheltered from the forces of practicability.

It might be well for us, just for a moment, to add up the situation and see what matters there are upon which there is any considerable amount of agreement. I suggest that there is a reasonable amount of agreement on the following points:

(1) Timber is a crop, and should be so managed.

(2) Fire is the forest's worst enemy and must be controlled.

(3) We should manage our forests—public and private—scientifically.

(4) We should perpetuate our forest industries.

(5) Waste in the handling of our forests should be reduced.

(6) We should cut the mature and over-ripe trees and make way for vigorous young forests.

(7) We should not "cut clean and burn" everywhere.

(8) We should not selectively cut everywhere.

(9) We should supplement natural reforestation by planting seedlings from nurseries.

(10) We should provide for roadside beauty.

(11) We should set aside recreational areas.

(12) We should conserve our fish and game.

(13) We have some facts today, but they are introductory and contradictory.

(14) We need more facts about our forests.

(15) The facts we have should be correlated.

(16) More men and women are interested in the forests than ever before.

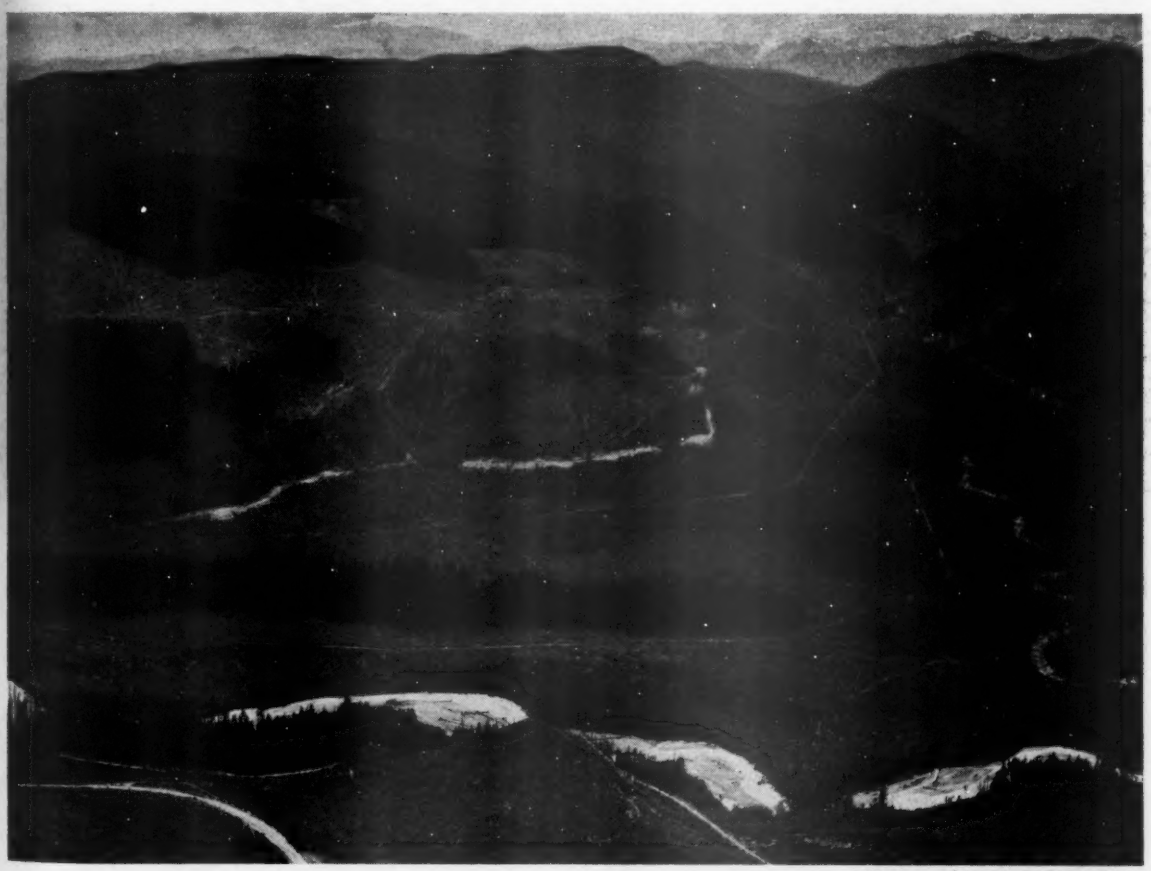
The Objective

If a committee composed of a representative of each group in the nation which is vitally interested in the management of American forests were to meet to adopt a unified objective, I believe that such a statement would read somewhat as follows:

"The guiding motive of every forest-managing agency, public and private, is to serve the American people. That service is to furnish the American people with uninterrupted supplies of forest products of ever-increasing usefulness at prices which they can afford to pay; to provide continuous, profitable, and enjoyable employment for men and women; to furnish a permanent and profitable investment for public and private capital; to maintain adequate playgrounds; to conserve the fish and game within the forests; to protect watersheds; and to maintain grazing areas."

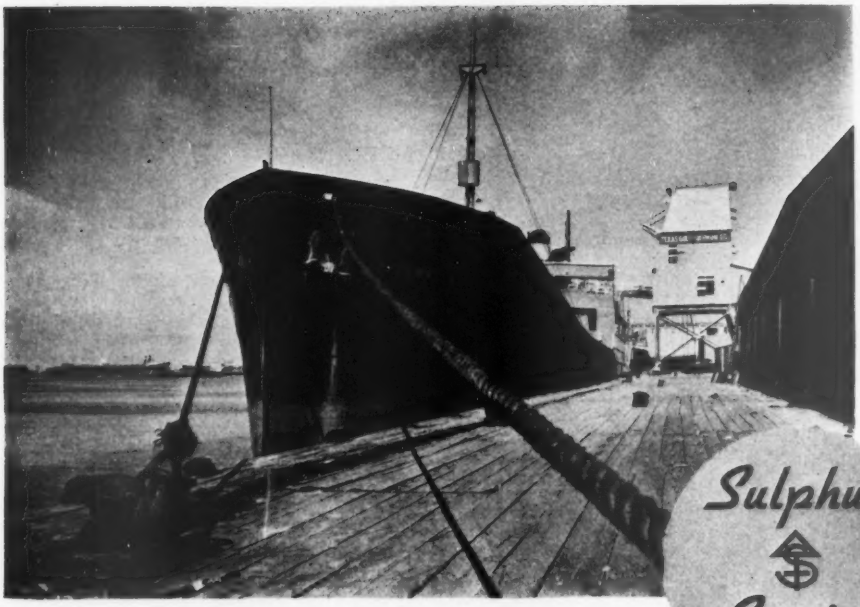
And so, gentlemen, in the spirit of Ira Allen's philosophy of action, in the spirit of Freedom and Unity, I propose that we inaugurate a Forestry Fact-Finding Decade, from 1939 to 1949—a decade during which public and private foresters will agree to go into the woods, into public forests and private forests; into forests of every type and of every age; in every State, every forest region—not to defend a pet theory, not to throw up a barrier around a favored practice, but to seek **facts.**

Do not misunderstand me, I am not saying we should do nothing for ten years but gather facts. We have a lot of facts now and there is no question but all interested parties should go



Photographs by U. S. Forest Service

An air view of compartment cutting and leaving of seed strips and blocks / / / Experiments in natural reforestation are being made on areas like this / / / The green timber left standing in strips and blocks reseeds the surrounding areas from which the trees have been harvested and the slash burned / / / This whole experiment of natural reforestation depends to a very considerable extent on keeping fires out once the new trees have been started / / / An intensive study is being made on this particular area with a view to developing a plan of cooperative management and use of private, state and federal timber holdings so that continuous production may be carried on.



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Second to none are Texas Gulf's marine facilities for moving its pure Sulphur in big tonnages from Galveston to all parts of the world. Ample stocks on hand at the docks eliminate delays. Modern machinery fills the holds quickly. Ships are soon underway.

These extensive shipping facilities provide a real service to users of Sulphur in the United States. Ships keep several transfer depots on both coasts well-stocked so that in emergencies buyers can get their requirements very quickly.

Texas Gulf's large enterprise is an enterprise of service.

Research is an important part of Texas Gulf Sulphur Company's activities. New arts in the use of Sulphur are being developed involving not only the melting and burning of Sulphur but also its applicatiton in new fields. The recent use of Sulphur in the centrifugal casting and lining of pipe suggests to engineers new applications for this element.

TEXAS GULF SULPHUR CO.
75 E. 45th Street New York City
Mines: Newgulf and Long Point, Texas



Decadent, over ripe, thrifty and immature trees form the typical Douglas fir virgin stands ' ' ' What silvicultural method should be used here? What trees shown be taken? What logging method is best?

into a huddle on those facts and act where we are agreed that such action is sensible. My point is, we need many more facts than we now have if we are to attain our objectives on a reasonably sure footing and not be guilty of going off half-cocked.

A Fact-Finding Era

As we enter this Decade of Fact-Finding, I suggest that we establish a clearing house in each forest region where all the facts may be assembled, and that in this clearing house we catalog analyze, dissect, interpret and correlate all the facts that we gather. As a result of such a procedure, carried on for the next ten years, I suggest that we can evolve forest management methods that will be practical, that will be scientific, and that will lead us closer to the attainment of the broad objectives of the forest policy which I have attempted to put into words. The Weyerhaeuser Timber Company will gladly become a party to such a Decade of Fact-Finding and will cooperate fully in such a venture.

The interest of the men on the job is vital; it is strong; its is natural. There are more fallers and buckers and rigging men, more workers in the woods, more superintendents and engineers, more managers and owners today who are convinced of the soundness of the general purposes of forest management than ever before in the history of the country. This is the most valuable fact that we have. This interest has already been enlisted in many cases.

A Decade of Fact-Finding, entered into by the men and the management of the lumber industry, in cooperation with State and Federal Forest Services, and with all other agencies interested in our forests—will produce real results.

Gentlemen, we are all in the same boat—public and private foresters, loggers and sawmill men—for in the final analysis what really matters is what the American people think about the management of all the forests—public and private, large and small. They look at them as a whole. We are all thrown together in a big task, and the very magnitude of the problem with its many complex physical, geographic, economic and legal ramifications demands that we join forces in a spirit of "Freedom and Unity" in an effort to base the management of our forests on more **facts.**

Worthington Offers Improved Hotwell and Condensate Pump

● In recent literature directed to steam power plant owners and operators, Worthington Pump and Machinery Corporation of Harrison, New Jersey, announced the development of an improved two-stage centrifugal hotwell and condensate pump. Featuring oversized suction openings, pick-up type impellers, and generous vents, the new line of pumps is offered for efficient removal of condensate under high vacuum, with minimum available submergence.

The casing of the new pump is of cast iron, horizontally split for ready access and removal of the rotor. Suction and discharge nozzles are located in the lower half of the casing, while an interstage passage is cast integral with the upper half of the casing. A liberal sized vent is provided to permit escape of entrained vapor.

Bronze impellers, of the single-suction enclosed type, designed especially for hotwell and condensate service, are mounted on the shaft with the suction openings facing inward. The back, or discharge, sides of the impellers are thus adjacent to the stuffing boxes, so that the latter are under first and second stage discharge pressures respectively, effectively preventing leakage of air into the pump.

Other important details of construction, dimension tables, and an interesting sectional view of this improved product are contained in the Worthington bulletin W-318-B15.

Bureau of Standards Studies Chalk As Paper Filler

One of the most important developments during the past several years in the use of fillers in the United States for the manufacture of book papers has been the remarkable increase in the use of chalk, calcium carbonate. Improvement in the quality of chalk products and better knowledge of the way to use them have permitted the production of papers of superior printing quality for certain purposes and of a high degree of whiteness. There are three kinds of chalk products used: the natural, the precipitated, made by treatment of lime water with carbon dioxide gas; and whiting which is a by-product of the causticization of sodium carbonate with lime.

In an investigation at the National Bureau of Standards, the results of which will be published soon, some natural and some precipitated chalk were used as a part of papermaking studies of the effect of filling and sizing materials on the strength and stability of book papers. When used in paper having a moderate degree of stability, the soda-sulphite paper most commonly produced, the chalk materially improved its stability. No doubt this is because of the high alkalinity of the paper, around pH 8. The strength of the paper was satisfactory, and the opacity and color were excellent.

It was found that the paper could be sized sufficiently to be written on with ink satisfactorily by the process of adding the customary amounts of rosin size and alum to the beater then adding the chalk to the stock at the machine chest. The stock foamed somewhat but it is believed that the foam could be kept down satisfactorily with a fine water spray. The retention of filler on the paper machine was good and was greatly increased when the rosin size was used.





Seedlings are growing here for restocking areas that have not been reforested naturally ' ' ' Two years in the nursery ' ' ' 50-70 years in the woods ' ' ' Then the harvest—if the fire is kept out.

Norton Issue Two Bulletins

● The Norton Company of Worcester, Massachusetts has recently issued two new bulletins. One titled "The Norton Pulpstone," covers the construction, installation and operation of this successful artificial stone for manufacturing groundwood.

"Roll Grinding" is the title of the second bulletin. The grinding of rolls used in a number of industries including paper, is explained in detail and tips for simplifying the work are given. The types of grinding wheels best suited for rolls of various materials are listed.

Canadian Pulp Exports Down 40%

● Canadian exports of wood pulp up to the end of August show a drop of 40 per cent compared with the first 8 months of 1937. Decreases range from 30 per cent in the case of mechanical pulp to 48 per cent for sulphate. Exports by class, as reported by the Department of Trade and Commerce, Ottawa, during the first 8 months of 1937 and 1938 were as follows:

Exports of Wood Pulp from Canada
(Short tons)

Class	8 Mos. 1937	8 Mos. 1938	Per Cent Decrease
Mechanical	98,345	68,851	30
Sulphite, bleached	255,728	156,014	39
Sulphite, unbleached	111,558	63,377	43
Sulphate	85,710	44,587	48
Other	24,936	11,708	53
Total	576,277	344,537	40

The United States, as usual, was the leading purchaser of these products. Shipments to us, however, dropped from 492,163 tons last year to 274,871 this year, a decrease of 44 per cent. Shipments to the United Kingdom during the same period nearly doubled, totaling 40,346 tons as against 21,132 in 1937. Shipments to foreign countries, excluding the United States, dropped from 62,982 to 29,320 tons.

George Prifold of Paraffine Dies in Berkeley

● Geore Prifold, 62, inventor and vice-president of the Paraffine Companies of San Francisco, passed away at his home in Berkeley on October 13th.

Mr. Prifold won international recognition in 1913 as the inventor of felt base floor covering. He came to Emeryville, where the Paraffine Companies largest plant is located, in 1932 after fourteen years with the firm's Eastern division.

He was active in civic organizations in the East Bay region and was a member of Knights Templar. He is survived by his widow, a son, George Jr.; and twin daughters, Mrs. Robert D. Harrison, and Mrs. Gordon Beall of Berkeley.

Olson of Taylor Visits Coast

● R. E. Olson, manager of the sales engineering department of the Taylor Instrument Companies of Rochester, New York, makers of Taylor temperature indicating, recording and controlling instruments, visited Pacific Coast pulp and paper mills early in November.

Mr. Olson was met at Spokane by George H. Linsley, Pacific Coast manager, whose headquarters are in San Francisco, and by L. H. Wear, Pacific Northwest representative, whose headquarters are in Portland.

The three men called on a number of mills in the Northwest where Taylor instruments are in use. Later, Mr. Olson, accompanied by Mr. Linsley, visited mills in California before returning to Rochester.

Chemical Foundatiton Loses Appeal In Suit Against General Analine

● On September 23, 1938, the U. S. Circuit Court of Appeals handed down its decision unanimously affirming the decree of the U. S. District Court for the District of Delaware, which had dismissed the complaint of the Chemical Foundation, Incorporated, to compel the transfer to it of titles to certain patents granted to Richard Herz, and assigned by him to the General Analine Works, Inc. These patents cover the manufacture of intermediates for the production of the well known Hydron Pink & Orange.

General Dyestuff Corporation is sole sales agent for General Analine Works, Inc.

10,000 FT. HEADS
WITH BINGHAM HI-PRESS PUMPS

● Pulp and Paper producers have found the Hi-Press a pump that is a money-saver for booster services. The Hi-Press is made in a range of sizes designed to efficiently deliver 5 to 200 gallons per minute, which means lower-horsepower requirements at high pressure.

Pulp and Paper producers find the Hi-Press is particularly suited for use in BOOSTER SERVICE, DE-SUPER HEATER SERVICE OR ON HYDRAULIC PRESSES.

WRITE FOR INFORMATION



• Vertical multistage high pressure pump.

Bingham PUMP COMPANY
705 S. E. MAIN STREET
PORTLAND, OREGON

(Concluded from page 31)

directing a stream of air from a fan or blower so that it strikes the wheel and the work with cooling effect. Another method also found effective is to adjust a suction nozzle close to the grinding contact. The face of the wheel can also be shaped so as to provide self-ventilation. This is achieved by grooving the face of the wheel so as to create a down draft between the wheel and the work.

Taking very light cuts and operating the roll at a very slow speed is another method employed by some mills to keep the work and the wheel cool. Still others achieve the same object by reducing the wheel speed.

The speed at which rubber rolls can be ground is governed to a large extent by the density of the rubber covering, whether it be hard, medium, or soft. A roll testing 0-10* (hard) can be ground faster and with a heavier cut than can a roll testing 60-70 (medium), while a roll testing 150-170 and upwards (soft) must be ground at a slower speed and taking lighter cuts.

● There is no definite formula for the depth of cut and table traverse. These can best be regulated by close observation on the part of the operator, noting the way in which the wheel is cutting and so regulating the table traverse that a smooth cut is obtained. Do not attempt to use too fast a table traverse or too heavy a cut, as this will defeat the purpose of the grinding, resulting in a poor finish and damage to the grinding wheel and roll. The operator of the machine can readily note whether or not the wheel is cutting freely, or if it is generating heat and burning the rubber from the roll rather than grinding it.

As a rule, when grinding dry, the depth of cut should not exceed 0.005" for the roughing passes, while for the finishing passes it should be reduced to about 0.002". The table traverse likewise should be slowed down. The corners of the wheel should be well rounded to prevent feed lines. Unless the roll requires a polish, it should not be touched with sandpaper after grinding, as this hand operation may cause unevenness in the surface.

Reducing the wheel speed to 5000 or 4500 surface feet per minute is generally advisable when grinding rubber rolls dry. Some plants use a wheel speed as low as 3000 s.f.p.m. to insure a free and cool cutting action.

Wet grinding simplifies the cooling problem and has the advantage of providing a somewhat smoother grinding action. Clear water is best, although either soda or any of the standard soluble oil compounds mixed with water in the proper proportions are most generally used.

The same rules and precautions outlined in the preceding paragraphs for grinding rubber covered rolls may be applied to the grinding of "Stonite" rolls.

Newsprint Production Down 27% in First Nine Months

● Production in Canada during September, 1938, amounted to 231,940 tons and shipments to 230,346 tons, according to the News Print Service Bureau. Production in the United States was 68,315 tons and shipments 74,336 tons, making a total United States and Canadian newsprint production of 300,255 tons and shipments of 304,682 tons. During September, 22,298 tons of newsprint were made in Newfoundland, so that the total North American production for the month amounted to 322,553 tons. Total production in September, 1937, was 420,989 tons.

The Canadian mills produced 821,390 tons less in the first nine months of 1938 than in the first nine months of 1937, which was a decrease of thirty percent. The output in the United States was 113,301 tons or sixteen per cent less than in the first nine months of 1937, and in Newfoundland 81,293 tons or thirty and two-tenths per cent less, making a total decrease of 1,015,984 tons, or twenty-seven and four-tenths per cent.

Stocks of newsprint paper at the end of September were reported at 196,511 tons for Canadian mills and 17,966 tons for United States mills, making a combined total of 214,477 tons compared with 218,904 tons on August 31, 1938.

Developments In Paper Testing

● Developments in paper testing during 1936-37 are reviewed by B. W. Scribner, National Bureau of Standards, in a report published in the June, 1938, Technical Association Papers issued by the Technical Association of the Pulp and Paper Industry. The contents of 107 articles are mentioned. This is one of the annual reports of the chairman of the association's Paper Testing Committee.

The articles reflect the extensive variation in the use requirements for paper as the contents include testing for such divergent properties as strength, permeation of various fluids, printing quality, optical properties, fiber content, chemical properties, and properties peculiar to specific products.

In testing for strength, considerable attention was given to tearing resistance, folding endurance, bursting strength, and tensile breaking strength. Methods for permeability to printing ink, oil, grease, water, and air were described. The several forms of smoothness testers used to test for "printing smoothness" were studied by several investigators. As usual, a great amount of work on optical testing was reported and many new instruments for the purpose were described. Color, brightness, opacity, gloss, fading, and microscopy all received attention. In microscopy, several new stains for the identification of fibers were described, and procedures and instruments for photomicrography and use of fluorescent-light were discussed. In chemical testing, considerable work was done on measurement of pH; and improved procedures for synthetic impregnating materials, resin, cellulose fractions, copper and manganese, were some of the other important developments.

Several important reports dealing in general with the development and standardization of paper testing methods, were issued by the Paper Testing Committee of the Paper Makers' Association of Great Britain and Ireland, the Technical Committee of the American Paper and Pulp Association, and the Paper Testing Committee of the Technical Association of the Pulp and Paper Industry.

German Pulpwood Imports Rise

● German pulpwood imports for the first six months of 1938 amounted to 466,100 metric tons compared with 393,000 metric tons for the first half of 1937, according to data obtained by the U. S. Department of Commerce.

The leading sources of import were Czechoslovakia and Latvia with substantial amounts coming from Poland and Canada.

The Advantage of Horse Sense

● The National Safety Council in a recent bulletin published this disparaging comparison between human and horse sense.

"In 1896 the British Association for the Advancement of Science issued a statement that horseless carriages could never be widely used because their operation required too much skill.

"The driver," it was pointed out, "did not have the advantage of the intelligence of the horse in shaping his path.

"Today more than ever we realize that horse sense is lacking in the operation of motor vehicles. Perhaps many members of the British Association are still alive to say, 'I told you so.'"


Quality
SULPHITE
PULP
PUGET SOUND
PULP & TIMBER COMPANY
BELLINGHAM, WASH.
DOMESTIC & EXPORT
SHIPMENTS

Trade Talk



of Those Who Sell Paper in the Western States

Paganini Retires From General Paper

● C. M. Paganini, president of the General Paper Company, San Francisco, since 1918, announced his resignation as of November 1. Mr. Paganini stated that his other interests demanded more and more of his time, with the result that he felt that he should resign from the paper jobbing company which he had headed for so many years.

The General Paper Company was founded in Seattle in 1915. In 1917 Joe Garin became interested in the company and it was moved to San Francisco.

Harry Bean remains at his post as general manager.

Archie Thomas Receives 30 Year Pin

● For 30 years of service to the Zellerbach Paper Company, Archie Thomas of the Oakland division, received a pin during October. He is an outside printing paper salesman after serving in the office as billing clerk, country shipping clerk and counter salesman.

Sales Service In New Location

● The Sales Service Corporation of California, according to H. T. Phillips, manager, recently moved into new San Francisco offices at 48 Broadway. The new location provides double the space that was available at the former location. New items are being added to the lines already handled by this company, and are available at both the San Francisco and the Los Angeles warehouses.

Ward Howard Coast Visitor

W. R. Howard, Howard Paper Company, Urbana, Ohio, was a Pacific Coast visitor early this month. While in San Francisco he made his headquarters at Blake, Moffitt & Towne.

Dan Hardt Visits BM&T

● Visiting Blake, Moffitt & Towne on his annual trip to the Coast early this month was Dan Hardt, Neenah Paper Company, Neenah, Wisconsin.

Zamloch's Hobby

● Claude Zamloch, credit manager of the Oakland division of the Zellerbach Paper Company, has an interesting hobby. He binds articles from the National Geographic according to subject instead of filing the monthly issues.

Mr. Zamloch has now completed over twelve volumes, covering consecutive issues from 1910. United States articles are bound in brown; foreign ones in red, and all others in green.

"Paper's Part In Business"

—is the title of the first of four mailing pieces to be mailed to customers by the Zellerbach Paper Company to commemorate Isadore Zellerbach's 50 years in the paper business.

The mailing piece, attractively produced in two colors on Hammermill offset, wood finish stock, states:

● "It has been said that 'An army travels on its stomach.' Less dramatic, but equally true is the statement that 'Business progresses on paper.'

"Visualize, if you can, the state of business demoralization that would be created by the abolishment of paper. From letterheads to memo pads . . . from bills of lading to bills of sale . . . from carbon copies to contracts . . . from blueprints to bank books . . . from card indexes to catalogs. . . . Business is dependent for its smooth operation upon the use of paper.

"Like a protecting sentinel, paper stands guard over the pathways of commerce, eliminating needless friction, making possible the consummation of empire-building deals, simplifying every process in the complicated pattern that is modern industry.

"If you doubt the importance of paper, try going through one business day without it."

In a second column the first of the new Zellerbach mailing pieces says, "Paper" Zellerbach was the nickname given to Anthony Zellerbach, founder of the Zellerbach Paper Company . . . a well earned cognomen because of his tremendous interest in his merchandise.

"Anthony Zellerbach was a business man—and, naturally, his first customers were business men. In 1877—the year that he set up his first little store in San Francisco, the demands of business were very different from those of today, but Anthony learned then, what his company has observed ever since, that the only thing constant in business is Change.

● "New business forms—new accounting systems—new types of office duplicating machines—new methods of filing—each development creates a paper problem. To be ready to serve the current need and anticipate the future development is the Zellerbach Paper Company's constant aim.

"The paper business of today is a thousand times more complex than in the days of 'Paper' Zellerbach but then and now the basic principle of successful paper merchandising is the same . . . Supplying the correct paper for the job."

The last page gives a brief outline of Isadore Zellerbach's history in the paper business, his aims and his ideas, ending with this statement, "Isadore Zellerbach's 'part in paper' has been, is, and will continue to be as important as 'Paper's Part in Business.'"

Kensey Moves To Los Angeles

● Alexander Kensey, formerly manager of the Envelope Corporation in San Francisco, has moved to Los Angeles where he will make his headquarters at the Coast Envelope and Leather Products Company, affiliate of the Envelope Corporation. Mr. Kensey will continue in a supervisory position over both companies and will travel between the cities to carry on the work. Bert J. Clifford will act as manager of the Envelope Corporation.

Goldsmith Leaves On Voyage to New York

● David J. Goldsmith, secretary of the Crown Zellerbach Corporation and its subsidiaries, sailed from San Francisco, November 4, on the Panama Pacific Line's steamship Newport News, for a month's trip to New York via the Panama Canal. It is a combined rest and business trip.

Foreign Printing Exhibit Being Shown by Zellerbach

● Much interest is being shown in the exhibit of foreign printing specimens which are being exhibited at the several divisions of the Zellerbach Paper Company in the western states.

American Stocks New Cups on Coast

● American Lace Paper Company of Milwaukee has placed for convenience of the western distributive trade a stock of its new Porcell cup and container at the San Francisco and Los Angeles branches of Sales Service Corporation, according to A. L. Kippes. The cup is moulded in one piece and can be used in serving hot and cold liquids either for immediate consumption or to carry about.

Recreation Club Holds Dance

● The Recreation Club of the Zellerbach Paper Company in San Francisco held a dance at the Palace Hotel on October 15. Woodrow Leavick and Jimmy Davis headed the committee which put on this large and successful social affair.

Praeger and Moon Married in October

● Dick Praeger and Frank Moon of the San Francisco division of the Zellerbach Paper Company both took brides during October.

Paper Mill Men's Club Hold Fourth Hi-Jinks

At Riviera Country Club on Santa Monica Bay, October 7th

EACH fall with the occurrence of the Paper Mill Men's Club Sports Carnival and Hi-Jinks the center of paper industry activity veers to the southwest and Los Angeles becomes a Mecca of paper mill representatives and merchants alike. For the fourth year the club was host to the wholesale paper and twine distributing trade and new prestige was added to this now traditional and outstanding gathering of the paper clan.

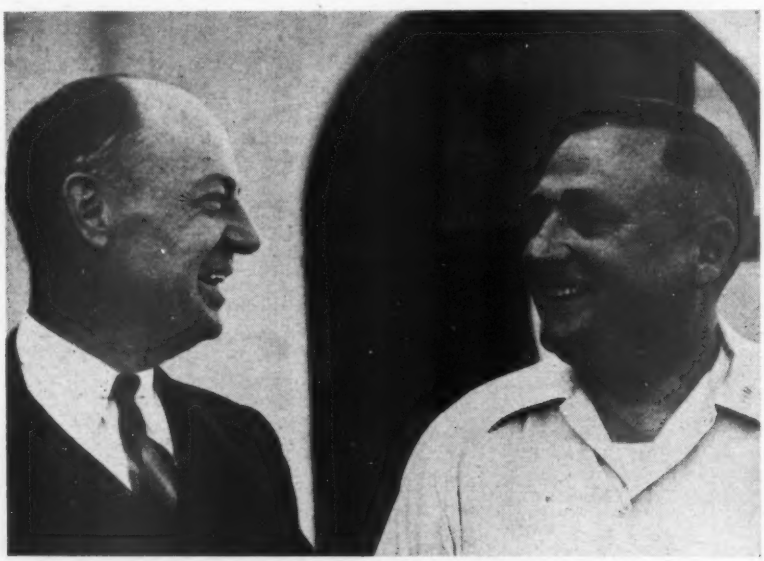
The party was held this year for the second time at the Riviera Country Club in the hills overlooking Santa Monica Bay; October 7th was the date. Attendance equaled that of last year, 275 men, a figure noted as representing the largest meeting of its kind in the west. As so aptly expressed in the program of the day, the purpose of the event is as "an expression of goodwill and appreciation on the part of the various mill representatives to their patron, the paper merchant." The club was founded three and a half years ago "to establish good fellowship and friendly contacts between the various mill representatives."

The board of directors and the committee earned fullest credit for the great success of the party and its capable presentation. Members of the board are George C. Wieman, president; A. C. Hentschel, vice-president; C. Francis Jenkins, secretary; Charles Spies, treasurer, and the three past presidents, Frank R. Philbrook, Edward N. Smith, and Neil B. Sinclair.

The 1938 Hi-Jinks Committee was headed by Charles Spies. Tom Lyons was vice-chairman, Louis Wanka, finances, assisted by Harry Fields and C. Francis Jenkins, G. N. Madigan, entertainment, assisted by Arthur L. Fox and Edward N. Smith, A. A. Ernst, golf, assisted by L. M. Lamboy and F. R. Philbrook, Kenneth R. Ross, door prizes, assisted by H. F. Rottler and Robert S. Morrill, W. A. McBride, sweepstakes, assisted by A. C. Hentschel and William Heitman, Roy J. Gute, program, invitations, assisted by Lester E. Remmers and A. Bruce Swope, Horace E. Gibson, softball and other sports, Russell F. Attridge, sergeant at arms, T. C. Bingham, assistant sergeant at arms, and Neil B. Sinclair, general committeeman.

The Sports Carnival and Hi-Jinks opened with the annual hard fought Paper Buyers vs. Mill Men Soft Ball game. The records are a bit hazy regarding the first tussle between these giants of the diamond. The second game went to the Paper Buyers by a "mere" margin. The game last year was a walk away for the Mill Men. This year the tide turned again and the Paper Buyers swamped the Mill Men.

● At game's beginning the Mill Men mustered up a seven man team composed of G. N. Madigan, Jack Weiman, A. S. Hammond, Chas. L. Brouse, Vernon Moore, Jack London, and Horace Gibson. The Buyers numbered eight in their ranks, Bob Whiting, C. D. Kerr, Louis Clark, Harry Lax, Harry Horowitz, Don Plumb and Bill and Sam Horowitz. As the innings beat out the sad news for the Mill Men and the bright big score for the Buyers new recruits were taken in by each team, but the reporter was doing eighteen holes of golf with a camera at the time and no report was brought in of who swelled the teams' ranks. Various scores were reported from 35 to nothing to nothing to 35 for each team. A victory for the Buyers seems well substantiated.



GEORGE WEIMAN, President of the PAPER MILL MEN'S CLUB of Southern California (right), talks over the successful Fourth Annual Hi-Jinks with NEIL B. SINCLAIR, Past President of the club.

GOLF WINNERS

The golf tournament drew a large turnout. Sixty-eight names swelled the entry list, which was composed of the following: R. F. Attridge, H. L. Fields, Bill McBride, Geo. A. Marmion, J. Fairchild, R. K. Elandson, S. J. Warner, R. M. Hyde, A. L. Fox, Gary Cann, Rolla De Hater, F. R. Philbrook, C. H. Fricke, F. D. Smith, P. K. Holland, W. W. Huelat, W. E. Traverner, L. Florentine, R. H. Buel, R. B. Towne, R. E. Walsh, K. R. Atwater, A. F. Arnold, Glen Wilson, L. S. Altshuler, C. Y. Arima, F. C. Bingham, F. F. Carman, R. T. Close, F. N. Gladden, D. O. Clark, N. A. Green, C. F. Jenkins, Walter Johnston, W. H. Heitman, L. W. Lamboy, M. E. Lavigne, G. H. Lamme, C. P. Head, B. R. Manker, J. E. Maurer, P. R. May, F. O. Fernstrom, M. A. Moss, J. N. Peterson, G. A. Theim, L. M. Simpson, C. H. Smith, P. R. Raab, S. G. Yount, W. L. Shattuck, S. P. Sitter, Charles Spies, G. A. Ward, F. C. Van Amberg, Earl Van Pool, W. E. Webb, G. C. Wieman, C. B. Kerr, W. J. Gray, C. G. Hulse, J. A. McDaniels, M. A. Vanderheiden, G. T. Lyons, Irving Damon, Lon Levine, C. N. Thomas and A. C. Hentschel.

Eight winners emerged from this long list to be awarded handsome prizes for their skill on the links. In class A, 1 to 15 handicap, with a net of 73 was Walter Johnston, winning a handsome glass and tray set. In class B, 15 to 21 handicap, with a net of 73 was R. E. LeGrant, winning a beautiful electric clock. In class C, handicap of 22 and over, was C. Y. Arima, with a net of 71, winning a fine golf bag. For select best nine holes, L. M. Simpson won a poker set for 28. Runner up for select best nine holes was W. W. Huelat, who scored 29 and won a silver pitcher. Dick Jones, with a score of 13, was awarded an ash tray for his putting prowess. Five men, Geo. Marmion, Gary Cann, Paul R. May, M. A. Moss and G. T. Lyons, drew the blind bogey at 76. The five men drawing the lucky 76 on the blind bogey threw for the prize, which was a beautiful golf ash tray. A second throw gave the blind bogey runner up prize, two compotes, to Paul R. May. Highest score (160) award went to Lon Levine.

• The banquet was begun promptly at seven. George C. Weiman opened the meeting with a welcome to the many guests and an expression of gratitude to committeemen and patrons of the party whose work and contributions had made the event possible. He turned the meeting over to the general chairman, Charles Spies. Mr. Spies called on golf chairman Ernst to announce the winners of the afternoon's tournament and make the awards. Then came the drawing of the door prizes. Donors of the many fine gifts were the American-Hawaiian Steam Ship Company, Los Angeles Service Transportation Company, the Luckenbach Steamship Line, McCormick Steamship Company and the Overland Terminal Warehouse Company. Mr. Spies called on Kenneth R. Ross, chairman of the door prizes committee, to conduct this part of the party. Drawings were made and the following winners and prizes emerged: J. D. Large, silver platter; L. Anderson, merchandise order; Wm. Heitman, merchandise order; W. A. Myers, merchandise order; A. J. Nelson, 1 bottle of liquor; Chas. Sparrowe, brief case; Charles Spies, merchandise order; Phil Gerrard, merchandise order; and the following men won bottles of liquor: Gary Cann, Carl Thomas, Geo. McNammara, Forey Hill, A. F. Arnold, R. J. Hossfelt, Alfred Brin, Al Ziegler, Earl Fillier, James W. Bylling, Harry Toplitzky, L. M. Simpson, F. G. Swonberg, Francis F. Carman and L. A. Altshuler.

Following dinner and the drawing of door prizes the master of ceremonies, Mark Cook led the group in community singing. Carl Anderson and Ralph Reed volunteered with a duet and sang several numbers for the group.

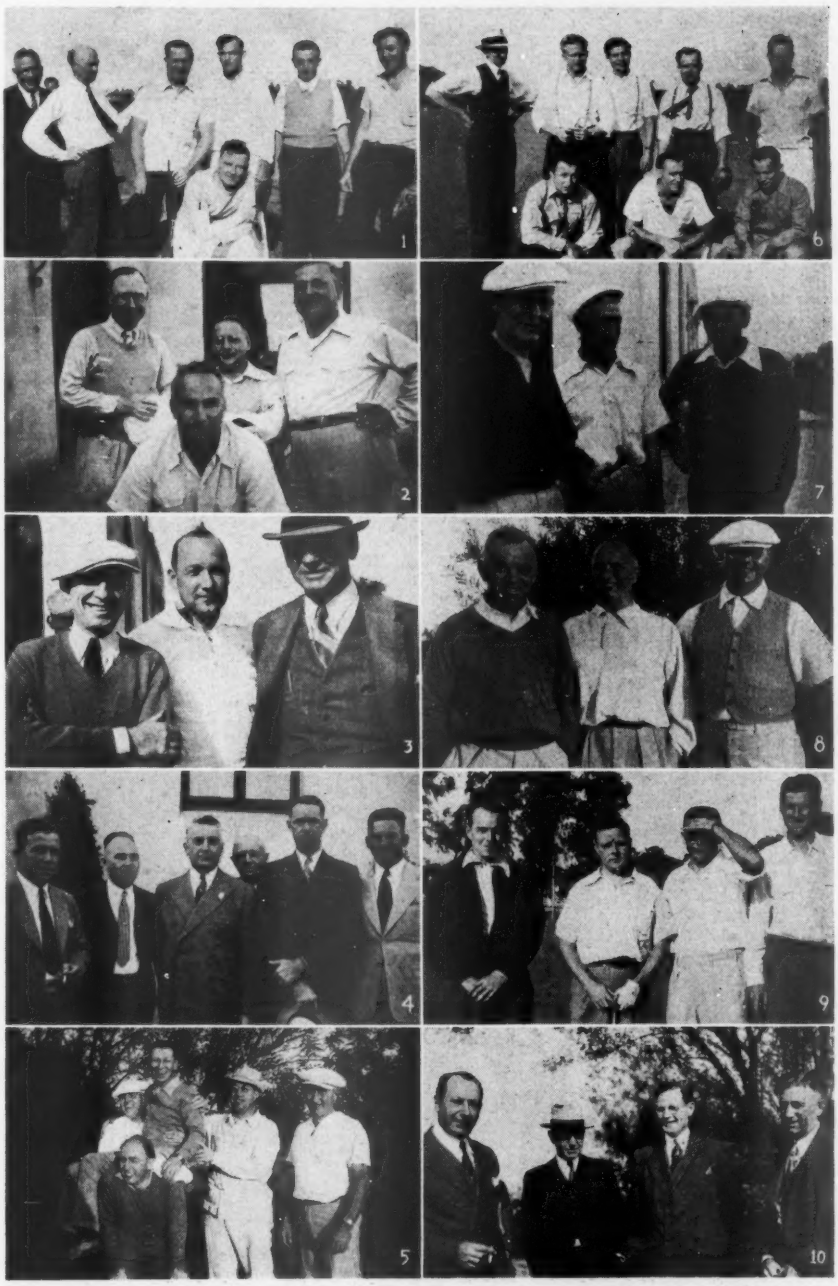
Then came the awards from the 1938 Christmas Dinner Fund. Wm. McBride was chairman of the committee and took charge of the drawing. Guests were called to draw winning numbers. R. T. Close was first and drew for Betty and Jack the number which meant a $500 award for them. Henry Horiuchi then drew for S. W. Bartz the ticket bringing him $100. Carl Fricke drew for E. M. Murphy the third award of $50. Carl Smith drew for H. E. Oviatt the fourth prize $45. Lee Richie drew the fifth award of $25 for E. L. Erickson. Twenty awards of $20 each were then drawn by as many other guests for the following winners: Betty Harris, M. Silverman, Wm. O'Gier, Fran Jenkins, Lewis Johanson, L. L. Dutton, A. Albach, Fred E. Scott, Minnie Perru, E. E. Rogers, W. A. Corder, Cal Wood, Hugh Williamson, Leonard Quan, E. Greiman, Geo. Fry, E. M. Murphy, J. D. Richardson, and C. O. Helmick.

• Dewey Megel, one of the founders of the club and president for the first few months of the current year prior to his transfer of business activities to San Francisco, was among the many out of town guests present.

The party was then further enlivened by the floor show of twelve vaudeville numbers: singing, dancing and tricks. Following this the group returned to the games rooms and the evening continued with the time honored indoor sports.

• The list of hosts and guest companies follows:

• The Adheseive Products Co., William L. Shattuck; Angelus Paper & Excelsior Products Co., F. C. Van Amberg; Bloomer Bros. Sales



SNAPS at the PAPER MILL MEN'S HI-JINKS

The Paper Mill Men's soft ball team lost to the Paper Buyers' team , , , In No. 1 are the losers, JACK WEIMAN, A. S. HAMMOND, CHARLES L. BROUSE, VERNON MOORE, JACK LONDON, HORACE GIBSON and JERRY MADIGAN in front , , , N o. 2, in front is FRAN JENKINS, Secretary of the Paper Mill Men's Club; EARL VAN POOL, W. J. GRAY and GEORGE WEIMAN after the golf tourney , , , No. 3, L. W. LAMBOY, IRVING DAMON and A. A. ERNST , , , No. 4, BILL CHARBENEAU, ED WALDEN, LESTER REMMERS, B. A. WATSON, M. A. EARLY, KEN ROSS.

In No. 5, CHARLES HULSE giving ART KERN a boost , , , TED CORCORAN steadying the team with MILT CORCORAN to his left and PAUL RAAB in front , , , No. 6, shows the winning ball team, the Paper Buyers , , , Back row, C. D. KERR, LOUIS CLARK, HARRY HOROWITZ, BILL HOROWITZ, DON PLUMB , , , Front row, HARRY LAX, BOB WHITING and SAM HOROWITZ , , , In No. 7, GEORGE MARMION, HARRY FIELDS and RUSS ATTRIDGE , , , No. 8, CARL FRICKE, R. E. LeGRANT and FRANK PHILBROOK, first President of the Club, returning from the links where LeGRANT won Class B in the turnament , , , No. 9, ART FOX, NEWBY GREEN, GARRY CANN and BILL SHATTUCK , , , No. 10, CHARLES DIGBY, S. G. WILSON, LOUIS WANKA and C. G. SPARROWE.

Corp., James R. Townsend; **Boston Drinking Cup Co.**, H. O. Bishop; **Brown Company**, Earl Van Pool; **Brown Paper Goods Co. of California**, Charles E. Digby; **E. O. Bulman Mfg. Co.**, Johnson Carvell & Murphy; **California Cotton Mills Co.**, T. Charles Bingham; **California Fruit Wrapping Mills, Inc.**, F. O. Fernstrom, J. W. Genuit, J. E. Maurer, E. G. Swonberg; **California-Oregon Paper Mills**, L. H. White.

● **Capital Envelope Co., Ltd.**, George McNamara; **Comfort Paper Corporation**, L. C. Harden, Merle M. Paup; **Continental Bag Specialties Corporation**, I. A. Reiss; **Columbian Rope Co.**, K. R. Atwater; **Consolidated Paper Mfg. Co.**, L. Young; **Crown Willamette Paper Co.**, Lester E. Remmers, N. A. Green, C. O. Gunther, Wm. R. McHaffie, S. G. Yount, G. J. Ticoulat; **Crystal Paper Service Corp.**, Jack Williams, Paul R. Raab; **Cupples Company**, Charles Spies, Emil J. La Vigne; **Diamond Match Co.**, Tom Lyons, J. D. Large; **Dixie-Vortex Company**, Verner Moore, Francis Carman.

● **The Dobeckmun Company**, T. E. Bruffy, Charles E. Jones; **Everett Pulp & Paper Co.**, A. A. Ernst. **Fibreboard Products, Inc.**, O. C. Majors, Walter Johnston, J. A. McDaniels, J. D. Tudor; **The Pioneer Flintkote**, L. M. Simpson, Clifford Johnston, M. C. Larsen; **Fox River Company**, Gordon Murphy; **Graham Paper Company**, Frank R. Philbrook; **Great Western Cordage, Inc.**, Adin B. Wimpey, R. Hollis Hardy, C. H. Allen; **Hardwood Products Co.**, West Coast Coverage Co.; **Harvey Paper Products Co.**, H. O. Bishop; **Hawley Pulp & Paper Co.**, W. B. O'Malley.

● **Herz Manufacturing Corp.**, Hygeia Antiseptic Tooth Pick Co. Div. West Coast Coverage Co.; **Hoberg Paper Mills, Inc.**, Robert S. Morrill; **Johnson, Carvell & Murphy**, Russell F. Attridge, Garry Carlton, William F. Dryer, A. W. Henck, Al C. Henzschel, "Jerry" Madigan, Douglas McDougal, E. M. Murphy, E. W. Murphy; **Inland Empire Paper Co.**, S. R. Whiting, John E. Whiting; **Kimberly-Clark Corporation**, C. Francis Jenkins; **Lily-Tulip Cup Corporation**, W. A. McBride; **Longview Fibre Co.**, A. D. West, E. P. Hill; **Los Angeles Paper Bag Co.**, Herbert T. Rosenfeld; **Menasha Products Co.**, Roy J. Gute, Syl. P. Sitter; **Milwaukee Lace Paper Co.**, W. A. Theim.

● **Mill Agents & Distributors, Inc.**, Stanley Haehnlen; **Morgan Paper Company**, A. U. Morse & Co. Div., Elmer C. Thomas; **Nashua Gummed & Coated Paper Co.**, Neil B. Sinclair; **Natinoal Paper Products Sales Co.**, Harry L. Fields; **Nekoosa-Edwards Paper Co.**, Marvin Vanderheiden; **Northern Paper Mills**, Wm. Heitman, B. A. Watson, Irvin E. Damon; **Pacific Coast Envelope Co.**, Div. United States Envelope Co., Louis T. Mark, Joseph S. Fairchild; **Pacific Coast Paper Mills**, S. G. Wilson, Louis Wanka; **Pacific Straw Paper & Board Co.**, Johnson, Carvell & Murphy; **Pacific Waxed Paper Co.**, Chas. L. Brouse.

● **Paper Supply Company**, C. Cleve Bolyard, C. O. Helmick, C. L. Culp, R. C. Larson; **Paterson Pacific Parchment Co.**, Floyd D. Smith; **Rhinelander Paper Company**, Edward N. Smith; **Riegel Paper Corporation**, Thomas F. Donoghue; **Thomas M. Royal & Co.**, Donald E. Lent, C. W. Fischer; **St. Helens Pulp & Paper Co.**, Frank R. Philbrook; **Schermerhorn Bros. Co.**, A. Bruce Swope, Earl Fillier; **Silklin Paper Corporation**, Walter F. Goodman, Kenneth R. Ross, W. H. Charbonneau; **Southern Kraft Corp.**, Frank N. Gladden.

● **Straubel Paper Company**, H. O. Bishop; **Syndicate Sales Agency**, Ralph F. Reid; **The Tuttle Press Co.**, Edward N. Smith; **Tubbs Cordage Co.**, Wallace I. Atherton; **Union Bag & Paper Corporation**, G. S. Brenzel, F. B. Miller, R. G. Tilden; **Western Paper Converting Co.**, Frank E. Skrivanic, "Jack" London; **Western Transparent Bag Converting Co.**, J. Bailey; **Western Waxed Paper Co.**, George C. Wieman, Arthur L. Fox, Carl Thomas, Walter A. Voltz, Arthur E. Kern; **Western Waxed Paper Co.**, Gumming Division, A. S. Hammond; **Whitlock Cordage Company**, Louis A. Brunvold.

Guests

● **Acme Paper Company**, Glendale; **Alpha Beta Food Markets, Inc**, Vernon; **American Paper Company**, Los Angeles; **Angelus Paper & Excelsior Products Co.**, Los Angeles; **Badger Paper Company**, Los Angeles; **Bakers & Confectioners Supply Co.**, Los Angeles; **J. H. Ball Wholesale Co.**, Glendale; **Barnum & Flagg**, San Bernardino; **Blake, Moffitt & Towne**, Los Angeles, San Diego; **Brin Brothers**, Los Angeles.

● **Brunswig Drug Company**, Los Angeles; **Buel Towno**, San Diego; **California Hardware Company**, Los Angeles; **California Tobacco & Supply Company**, Long Beach; **California Wholesale Grocery Company**, Los Angeles; **Cann and Company**, Los Angeles; **Capital Envelope Company**, Los Angeles; **Carpenter Paper Company**, Los Angeles; **Central Paper Company**, Glendale; **Certified Grocers**, Los Angeles.

● **Channel Paper & Supply Co.**, Santa Barbara; **Glen L. Clark Company**, Long Beach; **Colonial Wholesale Grocery Company**, Los Angeles; **Commercial Paper Corp.**, Los Angeles; **Corcoran Paper Company**, Los Angeles, Long Beach, Fullerton; **Eastern Wholesale Grocery Company**, Los Angeles; **Fernandez Paper Company**, Brawley; **Frank's Paper Supply Co.**, Los Angeles; **Fred H. French Paper Company**, Los Angeles; **Fricke & Peters**, Long Beach.

● **General Paper Company**, Los Angeles; **General Woodenware Company**, Los Angeles; **Golden State Wholesale Grocery Co.**, Huntington Park; **Great Atlantic & Pacific Tea Company**, Vernon; **Haas, Baruch and Company**, Los Angeles, El Centro, San Bernardino, San Diego; **E. E. Hoagland Company, Ltd.**, Long Beach; **Hollywood Paper Company**, Hollywood; **Ingram Paper Company**, Los Angeles; **Interstate Wholesale Grocery Company**, Los Angeles; **Gordon Jenkins Company**, Los Angeles.

● **Juliard, Cockroft Corporation**, Santa Barbara, Ventura, San Luis Obispo; **Kelly Paper Company**, Los Angeles; **Klauber Wangenheim Company**, Los Angeles, San Diego; **La Salle Paper Company**, Los Angeles; **Alfred M. Lewis Company**, Riverside, San Diego; **Llewellyn Supply Co.**, Los Angeles; **Los Angeles Drug Company**, Los Angeles; **Market Wholesale Grocery Co.**, Los Angeles; **Margolis Bros., Ltd.**, Los Angeles; **Marmion & Company**, Long Beach.

● **McKesson & Robbins, Inc.**, Los Angeles; **Pacific Chemical Company**, Los Angeles; **Pacific Pulp & Paper Industry**, Seattle; **Pacific Wholesale Grocery Co.**, Los Angeles; **Paper Products and Supply Co.**, Los Angeles; **Paper Supply Company**, Los Angeles; **Pomona Paper Products Co.**, Pomona; **Ralphs Grocery Company**, Los Angeles; **Rand, Halpin & Hibbler**, Santa Maria; **W. B. Reynolds**, Los Angeles.

● **Roberts Public Markets**, Venice; **I. Rudin**, Los Angeles; **S. E. Rykoff & Company**, Los Angeles; **Safeway Stores**, Los Angeles; **San Diego Paper Company**, San Diego; **San Diego Products Company**, San Diego; **Sawelson Wholesale Co.**, Los Angeles; **W. A. Scheniman Paper Company**, El Centro; **Sierra Paper Company**, Los Angeles, Long Beach; **Smart & Final Company**, Wilmington, Santa Ana, Glendale, San Bernardino.

● **Southern California Disinfecting Company**, Los Angeles; **Southern California Wholesale Grocery Company**, Los Angeles; **Spartan Grocery Company**, Los Angeles; **R. E. Spriggs Company**, Los Angeles; **State Wholesale Grocery Co.**, Los Angeles; **Stationers Corporation**, Los Angeles; **Stockwell-Binney Company**, San Bernardino; **Taverner & Fricke**, Los Angeles; **Three Star General Supply Co.**, Los Angeles; **Trade Supply Company**, Santa Monica.



MORE SNAPS at the RIVIERA HI-JINKS

B. A. WATSON appears in No. 1 ' ' ' No. 2, GEORGE WARD and L. F. FLORENTINE ' ' ' No. 3, BILL HEITMAN and MARVIN VANDERHEIDEN ' ' ' No. 4, F. O. FERNSTROM and PAUL R. MAY ' ' ' No. 5, J. D. TUDOR, umpire of the World's Pennant Paper Series (softball) smiles over the yet unsullied scoreboard ' ' '

No. 6, TOM LYONS, Vice-Chairman of the Hi-Jinks Committee ' ' ' No. 7, A. S. HAMMOND, J. F. SMITH and T. C. BINGHAM ' ' ' No. 8, J. M. McCORD and LEWIS H. WHITE ' ' ' No. 9, CHARLES SPIES, General Chairman of the 1938 Hi-Jinks Committee ' ' ' No. 10, M. W. NOLAND and C. H. THOMAS ' ' ' No. 11, CHARLES L. BROUSE and JACK WEIMAN ' ' ' No. 12, AL HENTSCHEL, Vice-President of the Paper Mill Men's Club, and WILLIAM McBRIDE, Chairman of the Sweepstakes Committee.

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● Union Hardware & Metal Co., Los Angeles; Union Paper Supply Company, Los Angeles; United States Paper Company, Los Angeles; United Supply Company, San Diego; Upholstery Supply Corporation, Los Angeles; John Vanderzyl, Riverside; Ward Davis & Dunn, Los Angeles, Wellman-Peck, San Diego; West Coast Bakers Supply, Los Angeles; Western States Grocery Co., Los Angeles, San Diego.
● Wilson Paper Company, Los Angeles; W. L. Wright and Son, Pomona, Zellerbach Paper Company, Los Angeles, San Diego.

Riches to Chicago On Business

● Lloyd Riches, manager of the Western Paper Converting Company of Salem, Ore., left early in October for a two week's trip to Chicago and New York.

McNamara Visits in San Francisco

● Geo. McNamara of the Capital Envelope Company, Los Angeles, spent a week in San Francisco early in October attending the Masonic Grand Lodge of which he is Senior Warden.

Courtesy Cards For San Francisco Fair

● In the November issue of The Informant, house organ of the Zellerbach Paper Company, the company announces its plan for the issuance of courtesy cards to its friends and customers visiting the San Francisco Fair during 1939.

The cards will provide customers with helpful services while visiting in San Francisco, such as, making reservations, handling of mail, of telephone calls and providing facilities for the writing of letters.



What about Taxes and Rates under P.U.D. operation?

THIS QUESTION has arisen in connection with some proposals to establish Public Utility Districts (P.U.D.s) as a substitute for Puget Power's closely knit, well integrated, efficient system.

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Give Puget Power the right to levy a two mill tax and free it from the obligation of including in its rates about a $2,000,000 a year tax bill and it will give you a reduction in rates that will be a knockout.

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PRESIDENT
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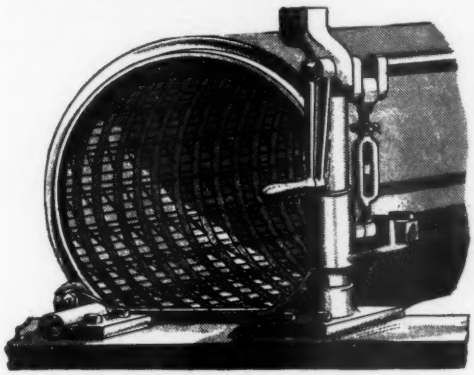
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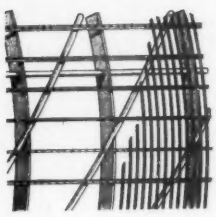
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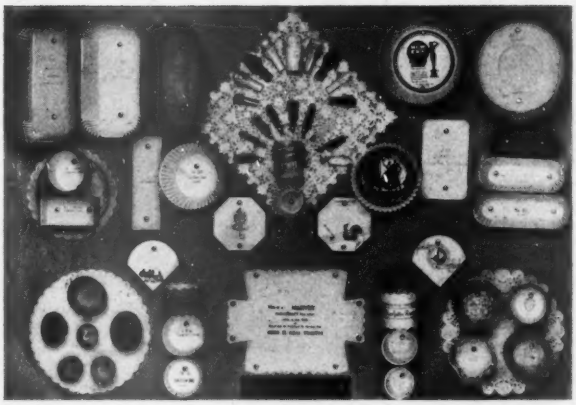
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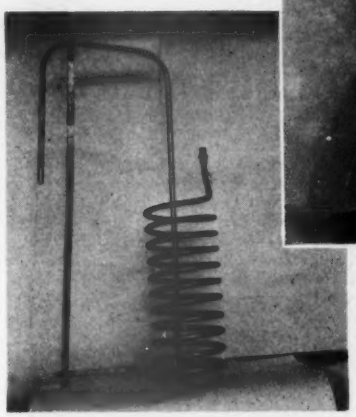
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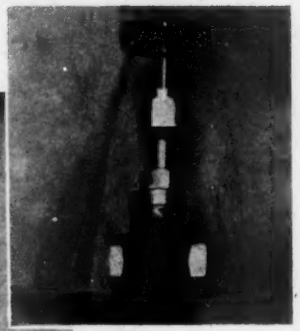
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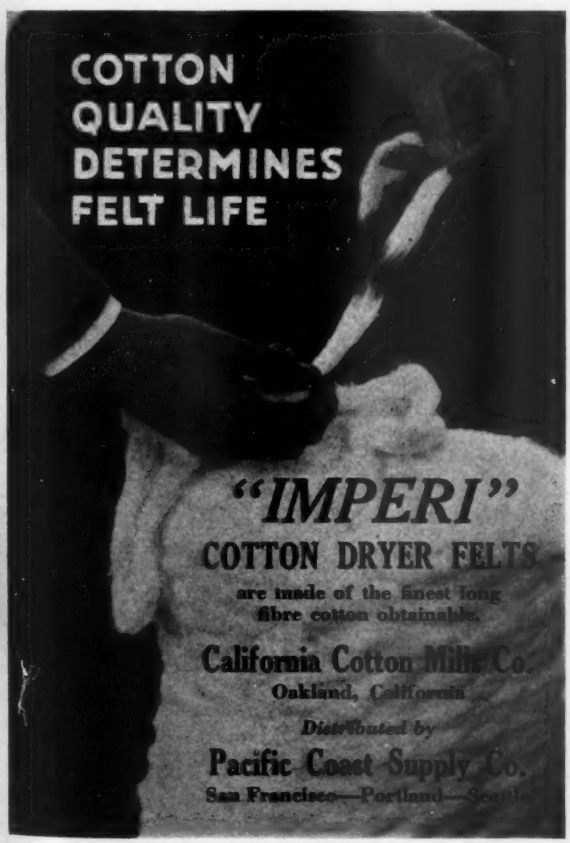




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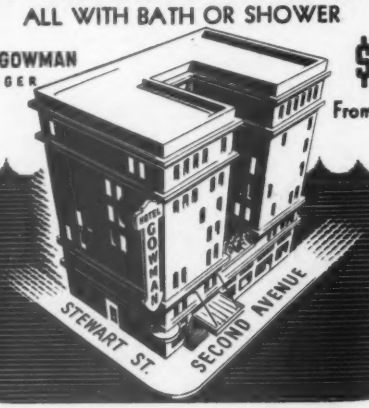
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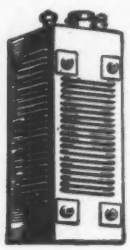
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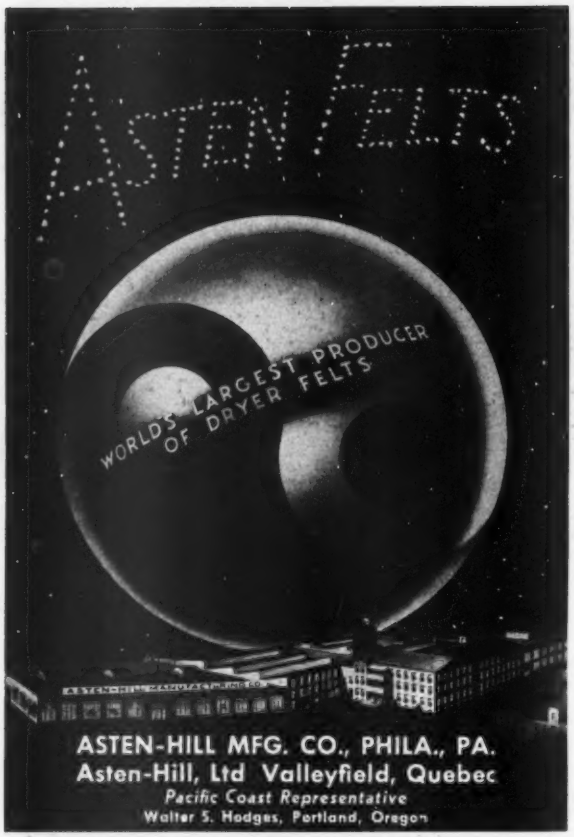
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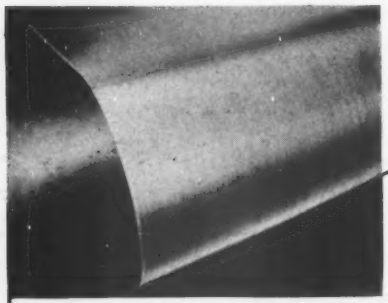
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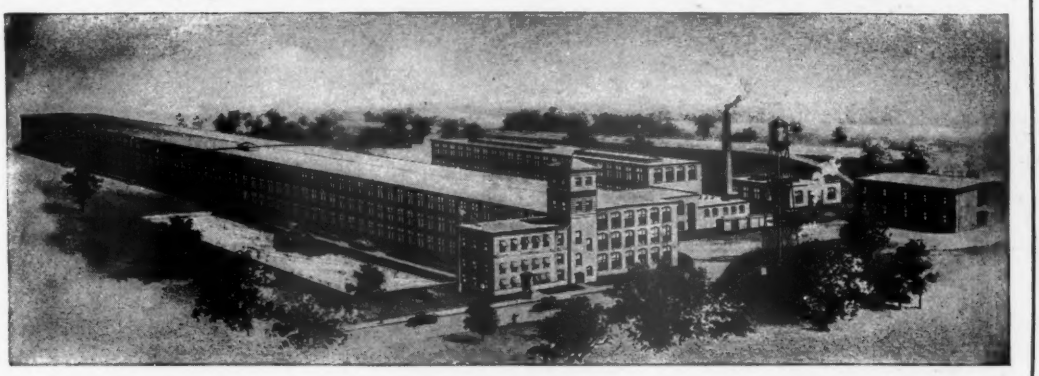
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